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EXHAUSTION OF SOILS IN THE CULTIVATION OF WHEAT AND CORN,

*As shown by Chemical Investigation into the
Composition of the Ashes of Each, Grown
upon the Soil of Kentucky.*

It is a fact too well known to the farmers of the older States that there is a great falling off in the yield of wheat per acre upon their lands, which have been under cultivation for ten, twenty, fifty or more years. Indeed in New England a large proportion of the land will no longer produce wheat at all, which, in the early settlement of the country, yielded full crops. On Long Island, and in other portions of the Atlantic States, after lands had ceased to be productive, the farmers, for many years, applied leached ashes—transported from Providence, Boston, and other cities—at the rate of 4 tons per acre, at a cost of \$4 00 and upwards a ton. For a long series of years this application rendered the land again fertile; but the farmers had no definite knowledge of the elements extracted from the soil in the cultivation of their various crops, or of the nature and properties of the ingredients contained in ashes that again restored it to fruitfulness. They knew the fact existed and hence they continued to apply the ashes (containing more or less lime) until they produced no beneficial effect; when ground bones and manufactured phosphates and superphosphates in various forms were procured and applied in large quantities with wonderful advantage. Under a more enlightened system of culture the fertility of these lands might have been preserved for ages to come, and without the expenditure of such immense sums of money in the purchase of foreign manures. It is a lamentable fact that large tracts of our Western lands have been and are still cultivated

upon this exhausting system, as is too evident from the great falling off in the acreable yield of wheat on these comparatively new lands. Wheat is the universal and the chief bread material of every civilized nation, and will continue to be, so long as the land is capable of producing it.

Experience teaches us that land which has been under cultivation a few years will continue to be comparatively productive in Indian corn; while it now produces hardly half the quantity of wheat per acre that it did when it was first brought under cultivation. The cause of this difference in the comparative productiveness of land, in the different crops, is explained by chemical investigations, which prove that the land contains but a limited proportion of certain essential ingredients for the production of wheat; while, for instance, with Indian corn, the essential properties are found in the soil in greater abundance. This, in part, explains the reason why corn is sometimes grown for a number of years in succession upon the same land with but comparatively little falling off in each succeeding crop. Another very important fact bearing upon this point should not be overlooked by the farmer, viz: that wheat is chiefly grown for market, and is shipped to remote parts of the world. This wheat contains, as we shall shortly show, an immense amount of the indispensable ingredients taken from the soil that will never be returned to it; and the continued improvements in the means of transportation by railroad and other facilities, are constantly increasing this draft upon the productive capacity of the land. Besides this transportation of the life of the land with the wheat crop, the straw, which might be employed as a medium for restoring much of the wasting elements of the soil, is too often suffered to

go to waste, or is consumed at once by fire.—But with corn the case is otherwise. This grain is chiefly consumed upon the farm by the hogs, cattle and horses, and in part goes back to the soil, while the stalks and husks remain upon the field, to be turned under for the support of future crops. All these, as well as the straw of wheat, might be employed to great advantage in the manufacture of manure under a more careful and systematic mode of management.

We have recently been furnished by Dr. Robert Peter, of Lexington, Ky. with some valuable facts touching this subject—the result of the chemical investigations which he is carrying on with his analysis connected with the Geological Survey of the State. These facts and figures are the result of an examination into the composition of the ashes of white wheat compared with those of Indian corn; showing by comparison the relative quantities of the essential mineral ingredients which these two grains withdraw from the soil on which they are grown, and their comparative influence in gradually exhausting its fertility.

For this examination a specimen of prime white wheat was obtained from the rich blue limestone land of Fayette county.

Several specimens of this wheat were submitted to different processes in order to determine the loss by the escape of moisture. For our present purpose it is not necessary to detail the different modes employed by Dr. Peter to determine this loss; but it resulted from 4.39 to 17.540 per cent. of its weight. It is estimated that wheat taken from the moist "pen," and dried in a warm warehouse or mill, may lose from 4 to 6 per cent. of moisture in a few days or weeks.

Dr. Peter proceeds to remark that "some of this white wheat, thoroughly air-dried in the laboratory, was next reduced carefully to ashes, and the ashes analyzed; and the results, as compared with the analysis of the ashes of Indian corn grown on similar soil, were as follows:

ASHES OF WHITE WHEAT.		
	In 100 parts.	In a bushel.
Potash, - - - -	0.454	0.2724
Soda, - - - -	.011	.0066
Lime, - - - -	.136	.0816
Magnesia, - - - -	.202	.1212
Oxide of Iron and Manganese, } traces,		
Phosphoric acid, - - -	.760	.4560
Sulphuric acid, - - -	.007	.0042
Chlorine, - - - -	.029	.0174
Silica, - - - -	.034	.0204
Carbonic acid and loss, -	.081	.0486
Total weight of ashes,	1.714	1.0284

Proportion of phosphate of lime, }	0.246	0.1473
Proportion of phosphate of magnesia, }	.562	.352
Proportion of phosphoric acid in the alkaline phosphates, }	.295	.1776

ASHES OF INDIAN CORN.

	In 100 parts.	In a bushel.
Potash, - - - -	0.2878	0.1612
Soda, - - - -	.2204	.1244
Lime, - - - -	.0076	.0043
Magnesia, - - - -	.1287	.0721
Oxide of Iron and Manganese, }	traces,	
Phosphoric acid, - - -	.4230	.2369
Sulphuric acid, trace,		
Chlorine, not estimated,		
Silica, - - - -	.0250	.0141
Carbonic acid and loss, -	.3195	.1789
Total weight of ashes,	1.4120	0.7919
Proportion of phosphate of lime, }	0.0139	0.0078
Proportion of phosphate of magnesia, }	.3584	.2001
Proportion of phosphoric acid in the alkaline phosphates, }	.1870	.1047

"By careful comparison of the preceding columns of figures it will be seen: 1st. That wheat contains a rather *larger proportion of ash* than Indian corn, and hence, in equal weights of the grain, withdraws more of the valuable ingredients from the soil than that. 2d. That the principle difference is in the *phosphates*, of which the wheat requires a larger quantity than the corn. 3d. That, as already stated by Boussingault, and other European chemists, the Indian corn is remarkably deficient in lime, as compared with wheat. In relation to the alkalis, viz: Potash and soda taking the sum of the two (as they no doubt are frequently substituted one for the other in the ashes of plants)—the difference in the two kinds of grain does not appear to be great.

"Now when we understand that these several ingredients—potash, soda, lime, magnesia, phosphoric acid, &c. &c. are not *merely accidental* ingredients of these grains, but *essential* elements, which are found, by numerous analyses, to be always contained in them in remarkably regular proportions, in whatever region the grain may be produced; and that however, or wherever corn or wheat may be planted, these ingredients must exist in the soil, or no crop can be raised: when, moreover, we reflect that the quantities of these valuable mineral matters removed from the soil in these

grains, tend so much to diminish the usually limited proportion which is naturally contained in it, we can understand readily why the raising of grain crops, *without manure, gradually and certainly exhausts its fertility.*

"We can see, also, from the above comparative table, the fallacy of the prevalent idea, in this country, that the "small grains" do not impoverish the soil, but rather tend to improve it. It is true that a *change of crop* is often beneficial to production; but the experience of England, and the older and poorer portions of our own country, shows that the "white crops" (wheat and other small grain), are amongst the most exhausting—requiring the most careful husbanding of manures.

"To make the comparison more easy between the exhausting influence of wheat and Indian corn, I give, in the following table, the relative quantity of essential ingredients removed from an acre of land by an ordinary crop of these two grains, without regarding, at present, that taken also in the stalks, leaves, husks, cobs, straw, chaff, &c. which also contain them.

IN A WHEAT CROP OF TWENTY BUSHEL, EACH OF SIXTY POUNDS.

	lbs.
Potash, - - - - -	5.448
Soda, - - - - -	.132
Lime, - - - - -	1.632
Magnesia, - - - - -	2.424
Phosphoric acid, - - - - -	9.120
Sulphuric acid, - - - - -	.084
Chlorine, - - - - -	.348
Silica, - - - - -	.408
Carbonic acid and loss, - - - - -	.972

Total, 20.568

Quantity of phosphate of lime,	3.6815
Quantity of phosphate of magnesia,	8.4300
Quantity of phosphoric acid in the } alkaline phosphates, }	4.4250

IN A CROP OF CORN OF FIFTY BUSHEL, OF FIFTY-SIX POUNDS EACH.

	lbs.
Potash, - - - - -	8.060
Soda, - - - - -	6.220
Lime, - - - - -	.215
Magnesia, - - - - -	3.605
Phosphoric acid, - - - - -	11.845
Sulphuric acid, not estimated.	
Chlorine, not estimated.	
Silica, - - - - -	.705
Carbonic acid and loss, - - - - -	8.945

Total, 39.495

Quantity of phosphate of lime,	0.390
Quantity of phosphate of magnesia,	10.005
Quantity of phosphoric acid in the } alkaline phosphates, }	5.235

From the above comparison it will be seen how important it is that all the straw from a wheat crop (as well as the straw, &c. from other crops), should be restored to the soil, either in the form of feed, litter for yards and stables, or directly to the field; as well as to employ every other appropriate means to maintain the wasting fertility of the soil, under constant cultivation.

In Pennsylvania the German farmers have wrought wonders in their soil by the application of lime, in connection with a regular rotation, including clover. In Kentucky and some portions of Tennessee, the farmers have a considerable advantage over those of the prairie States, from the fact that the limestone of these States abounds in the phosphates; and which from the action of the weather, is constantly giving off these ingredients to the soil, which in the latter, when the natural supply becomes exhausted must be restored by artificial means. The soil of England has long since been exhausted of these ingredients, and to restore which (in the form of bones, guano, &c.) frequently costs, for a single crop, more per acre than the value of an acre of wheat upon our prairies.

From the data here furnished, in connection with the analyses of the soils of various portions of Kentucky as exhibited by Dr. Peter, in the State Geological Report, it would be a matter susceptible of the clearest demonstration as to the period required to exhaust the several ingredients contained in these soils under the usual mode of cultivation. This, in some portions of the State, has already been determined by practical experience; for even some of the soil of the best portions of the State, has already, from injudicious management, parted with so much of these essential ingredients as to be hardly worth the cost of cultivation. But the calculation referred to would be an interesting one, not only to the farmers of Kentucky, but to those cultivating a soil abounding less in those important properties found in the soils resting upon the fossiliferous limestone.

A MISSOURI FARMER.—Maj. W. C. Connett, living in Buchanan County, 13 miles from St. Joseph, Mo. raised, last year, 60 tons of hemp, 12,500 bushels of corn, 5,000 bushels of oats, and 150 tons of hay. In addition to this he put up 80,000 lbs. of pork, and sold \$600 worth of butter, eggs, fruit, etc. His net profits amounted to \$12,000. Maj. Connett is a Virginian, and when he purchased his farm, his taxes were only \$1.60.

WHEAT AND CHESSE.

We sometime since half determined not again to refer to the ill-founded idea of the transmutation of wheat to chess, and hoped that the efforts of a number of distinguished cultivators in the State of New York last year to prove this transformation by carefully conducted experiments, would forever set the question at rest. But in this we find our mistake; for in several late papers we notice statements claiming the discovery of grains of chess growing upon heads of wheat; and in the *Ohio Cultivator*, of the 15th of August, it is asserted by a writer that his neighbor had actually discovered three stalks of wheat and five of chess all growing from the same root, and more recently a similar statement has been addressed to the *Valley Farmer*. Discoveries of this kind have frequently been claimed before; but in every instance where a minute examination has been made, it has turned out that where chess has been found in a wheat head it was merely the result of accident, brought about by the grain of chess becoming entangled within the chaff of wheat in the course of handling, and that no real connection existed between the two: and where it has been supposed that the heads of both grains have been found growing from the same root, it has turned out that the two plants starting in near proximity to each other, their roots became interlocked, and when they had arrived at maturity they became so intimately blended as to present the appearance of being but a single root. Similar instances may be met with in almost every square yard of meadow, where two or more varieties of grass seem to grow from the same root.

Wheat and chess belong to species so widely distinct in their botanical character that it is impossible for them ever to "mix," or to change one to the other. Permanence of species is one of the *fixed laws* of a Wise Creator. Were this otherwise there would be no stability in nature, and where we had sown wheat we should reap tares, and thorns and thistles would spring up where we expected useful crops. Looking to facts in nature, we everywhere see that the purity of species has been wisely guarded with great precision. For without this impossibility of indiscriminate mixture, our growing crops would appear in the greatest confusion, exposed as they are at the time of flowering to the active agency of the winds and to innumerable insects; and undoubted facts would everywhere appear, as claimed by the writer referred to, "that to

mow chess at a certain time the roots become perennial, and the next growth will be timothy; and to cut timothy at a certain stage of its growth will change to red top, and red top will turn to June grass," &c. Such assertions, though frequently appearing in the agricultural papers, are ridiculous, to say the least of them.

Varieties of the same species are multiplied, and improvements produced by crossing one upon another; but where species, even nearly allied, are brought together, the offspring of such union is almost always *infertile*. This is one of the strongest evidences that the Creator has established inviolable laws for the permanent protection and stability of species.—Upon this subject we copy from a distinguished writer, who remarks that: The supposed cases of perpetual fertile hybridity are so exceedingly few as almost to condemn themselves as no true examples of an abnormality so abhorrent to the system. They violate a principle so essential to the integrity of the plant-kingdom, and so opposed to nature's whole plan, that we rightly demand long and careful study before admitting the exceptions.

A few words will explain what is meant by perpetual hybridity. The following are the supposable grades of results from intermixture between two species:

1. No issue whatever—the usual case in nature.
2. Mules (naming thus the issue*) that are wholly infertile whether among themselves or in case of connection with the pure or original stock.
3. Mules that are wholly infertile among themselves, but may have issue for a generation or two by connection with one of the original stock.
4. Mules that are wholly infertile among themselves, but may have issue through indefinite generations by connection for each with an individual of the original stock.
5. Mules that are fertile among themselves through one or two generations.
6. Mules that are fertile among themselves through many generations.
7. Mules that are fertile among themselves through an indefinite number of generations.

The cases 1 to 5 are known to be established facts in nature; and each bears its testimony to the grand law of purity and permanence.

*The term mule is applied to the offspring of two nearly allied species, whether they belong to the animal or vegetable kingdom.

The examples under the head 2 to 5 become severally less and less numerous, and art must generally use an unnatural play of forces or arrangements to bring them about.

Again, in the animal kingdom, there is the same aversion in nature to intermixture, and it is emotional as well as physical. The supposed cases of fertile hybridity are fewer than among plants.

Moreover, in both kingdoms, if hybridity began, nature commences at once to purify herself, as of an ulcer on the system. It is treated like a disease, and the energies of the species combine to throw it off. The short run of hybridity between the horse and the ass, species very closely related, reaching its end *in one single generation*, instead of favoring the idea that perpetuated fertile hybridity is possible, is a speaking protest against a principle that would ruin the system if allowed free scope.

The finiteness of nature in all her proportions, and the necessity of finiteness and fixedness for the very existence of a kingdom of life or of human science—its impress on finite minds—are hence strong arguments for the belief that hybridity cannot seriously trifle with the true units of nature, and at the best can only make temporary variations.

It is fair to make the supposition that in case of a very close proximity of species, there might be a degree of fertile hybridity allowed; and that a closer and closer affinity *might* give a longer and longer range of fertility. But the case just now alluded to seems to cut the hypothesis short; and, moreover, it is not reasonable to attribute such a definiteness to nature's outlines, for it is at variance with the spirit of her system.

Were such a case demonstrated by well-established facts, it would necessarily be admitted; and we would add, that investigations directed to this point are the most important that modern science can undertake. But until proved by arguments better than those drawn from domesticated animals, we may plead the general principle against the *possibilities* on the other side. If there is a law to be discovered, it is a wise and comprehensive law, for such are all nature's principles. Nature will teach it not in one corner of her system only, but more or less in every part. We have therefore a right to ask for well-defined facts, taken from the study of successive generations of the interbreeding of species known to be distinct.

TO MEASURE HAY-STACKS.—An old farmer gives the following method: "Multiply the length, breadth and height into each other, and if the hay is somewhat settled, ten solid yards

make a ton. Clover will take from 10 to 12 solid yards per ton."

BENEFITS OF SUMMER DROUTH.

Various portions of the country have suffered more or less for want of rain during the past summer. In some sections the corn and potatoes have been materially cut short from this cause; potatoes have made but a scanty return, while corn will hardly exceed half a crop. But notwithstanding the immense excess of rain that had fallen throughout the country, during the last winter and spring, the drouth has not been so general as it was anticipated in the earlier part of the season, but favorable and timely showers have visited many portions of the country and brought forward the summer and fall crops to a full average. The greatest deficiency of rain has been experienced in Ohio, Indiana and Kentucky, and portions of Illinois, and even over these States the degree of drouth has been quite variable. In seasons of extreme drouth, when the summer crops wither and die for want of the "early and the latter rain," when the entire country seems parched and blighted, and threatening famine almost inevitably, we are apt to regard this withholding of a due proportion of refreshing rain as a kind of judgment sent upon us by an offended Providence—when, if we properly understood the operations of drouth, we should rather regard it as a blessing in disguise. The least observing among us may be able to call to mind the fact that crops the succeeding year after an excessive drouth, come forth with remarkable luxuriance and the harvest proves abundantly productive.

Observation and experience, confirmed by chemical research, have long since taught us that there is a limit to the supply of the inorganic or mineral constituents of even the most fertile soils within the reach of the roots of growing crops, and that the perfection of farming consists in that course of management that is best calculated to husband and increase these fertilizing ingredients. But where cultivation is continued for a series of years, without due regard to proper rotation of crops or of careful manuring, each crop as it is removed from the soil, carries with it a portion of the elements of production; and this, together with what is carried off by washing rains, speedily impoverishes the land. But nature, ever true to herself, is constantly laboring to supply these deficiencies. Besides the supply of mineral ingredients, derived from the slow disinte-

gration of rocks by the action of the air and rains, a more abundant and immediate supply is brought up from the depths of the soil during these much dreaded seasons of drouth. The manner in which this beautiful provision of nature is carried out is an interesting and profitable subject for consideration. In seasons of excessive wet, or long continued rain, the water that falls upon the earth is carried from the surface in streams, evaporated in the air, or passes off through the soil down to the springs below. In heavy, clay and loamy soils, the waste of the fertilizing materials of crops by these processes is comparatively slow; but on loose sandy soils it is more speedy. It is this difference in the texture of soils that constitutes the chief difference in their degrees of fertility; while the tenacious loamy soil retains the mineral and organic ingredients of crops, the porous sandy soil parts readily with these by the washing and leaching of rains.

During the dry, hot weather of summer an immense amount of moisture is carried from the soil by evaporation; and as the draft is made from the surface, the deficiency in some degree is made up from the depths of the soil below by the process of capillary attraction, just as water will rise from the lower point of a piece of moistened sponge, when held in contact with water—or by a more apt illustration, as a piece of sugar will drink up a body of water when placed in contact with it. This supply of the draft of moisture made from above is continued from the depths below, so long as the earth remains in the condition favorable to this upward circulation of the moisture that has been stored up from previous rains; and that will be so long as the drouth continues. With this continued rise of the moisture from below there is a corresponding proportion of the inorganic, or mineral constituents of plants, brought up in solution with it, and thus left within the reach of the roots of the present or future crops. The benefits of this kind of circulation are greatly increased in times of drouth by keeping the surface loose and mellow by repeated cultivation. We have frequently urged this infallible remedy against the effects of drouth, and it would seem that no one who has ever fully tested the benefits derived from it in seasons of drouth, when using proper implements for cultivation, could hardly be prevented from employing such means, however pressing other labors might be upon the farm. By keeping the surface constantly mellow by repeated cultivation in times of drouth,

a more vigorous and lively circulation of the remaining moisture in the soil is maintained, and with this increased moisture there is also an increase of the mineral food of plants brought up for the present as well as for future crops.

We know of some experienced cultivators engaged in the nursery business who always employ an extra force, and keep the horses, plows and cultivators in constant motion during seasons of drouth; and one unacquainted with the benefits of this operation on visiting these grounds, would be led to suppose that they had been favored beyond their neighbors with repeated showers.

Numerous experiments have been made by scientific cultivators, which have afforded abundant proof that the moisture which rises from the earth below, caused by the evaporation from the surface, brings with it, in solution, lime in its various forms—magnesia, potash, soda, and whatever the subsoil may contain of this kind. This is a wonderful and wise provision of nature for maintaining in the soil all those essential ingredients for growing crops—a provision not always considered by the complaining farmer.

CULTURE OF TEA IN AMERICA.

Some months since an arrangement was made, under government authority, with Mr. Fortune, of England, to visit China, for the purpose of procuring the seeds of the tea plant, in order by experiments, in different parts of this country, to test its adaptation to the soil and climate. Several packages of seeds have been received, and there is a very general desire on the part of farmers and horticulturists in different sections of the country to enter into experiments in the culture of this plant which constitutes one of the chief sources of the wealth of the greatest nation on the globe.—The numerous applications to the Commissioner of Patents for tea seeds have caused him to issue the following circular in reply:

"Owing to the delicate nature of the seeds, after undergoing so long a voyage, it would not be advisable to place them for the present, for experiment, in the hands of those unacquainted with their culture. Besides, it has been proven that this product can be successfully cultivated in various parts of the South, so far as the soil and climate are concerned; but this has been done on so limited a scale that the profits could not be determined, nor the culture extended, from a difficulty of obtaining a larger supply of plants. Hence, it would seem to be ad-

visible that the present importation should be grown in considerable quantities in those sections where it is known that it would mature, in order that more seeds can be procured, and the culture indefinitely increased. Still, it would be proper that experiments should be made on a limited scale in all parts of the Union where there would be a probability of success. No disposal will be made of the plants now growing at the propagating gardens before the convening of the next Congress, after which a feasible plan will be proposed for their distribution."

PRIZE FOR A DITCHING PLOW.

Dr. H. Hinckley, of Assumption, Christian county, Ill. a short time since made the important suggestion to the Vice-President of the Illinois Central Railroad company, about the propriety of that Company's offering a reward of \$500 for the best machine for opening ditches, for draining level land for agricultural purposes. At a recent meeting of the Executive Committee of this Rail-road Company the subject received marked attention, and the following resolution was thereupon adopted:

"Resolved, That the Illinois Central Railroad Company offer \$500 for the best ditching machine for open drainage. The simplicity and economy of its construction and its applicability to farm uses shall be such that it can successfully compete with manual labor. The award to be made by the Executive Committee of the State Agricultural Society, in connection with three scientific machinists, to be selected by that body. Before anybody shall claim payment of said award, he shall exhibit the practical working of the machine at the same places and times with the steam plow, which shall receive the award from the same committee; this Company agreeing to transport said machine to and from such points free of expense to the owner.

W. F. BIDDLE,

Secretary of Executive Committee,

Ill. Central R. R. Company.

Chicago, July 22d, 1859.

We deem this proposition of the Central Railroad Company one of vast importance to said Company, but more especially important to the farming community of Illinois generally. This Company is the owner of many thousands of acres of excellent land lying along the line of the road; but much of this land will long remain unoccupied on account of its tendency to retain water. When drained, however, it will be equal in value to almost any land in the

State. Once established a system of drainage in Illinois, and the capacity of the land for farm products will be more than doubled; and thousands of acres will be at once brought under cultivation that would otherwise remain unproductive for many years.

Of the practicability of such an operation by machinery there is not the shadow of a doubt. It only requires such stimulant as this Company has offered to accomplish the work in a short time. We wish them the most perfect success.

THE PEOPLE'S COLLEGE.

The establishment of an institution of learning, both physical and mental, under the above title, may be a matter new to most of our readers. From its noble designs, and the favorable auspices under which it is progressing, a brief account of it may be worthy of a place in the *Valley Farmer*.

The People's College is situated in the town of Havanna, Schuyler county, New York. It owes its origin chiefly to the efforts of the Hon. Charles Cook, of Havanna, who is erecting the structure, which will cost \$175,000. In addition to this he has also given a farm of the value of \$30,000 to be connected with the college for industrial purposes. A charter was granted by the legislature in 1853, and on the 2nd. of September, 1858, the corner-stone of the edifice was laid, under imposing ceremonies, amid a large concourse of people. On the 10th of August of the present year the anniversary meeting of the Trustees was held, when some 3,000 persons were present. The main building has now reached the fourth story, and is still progressing as rapidly as it is possible with the employment of about fifty workmen.

The main objects of the People's College is to qualify young men for the efficient discharge of the practical duties of life by a thorough education, not only in all the branches ordinarily taught in the best schools and colleges in the country, but especially in all the various departments of farming and the mechanic arts, with a view to elevate manual labor to that dignity and standing to which it legitimately belongs.

Workshops are to be erected for teaching practical mechanism, and students who are too poor to pay for their education will be permitted to labor in connection with the college, to defray their expenses. Already 200 applications from young men in various parts of the State have been received, asking for admission to the college.

It only remains to establish the fact among the young men of the country that a life of honest industry and well-directed manual labor is no less honorable than one elevated to the highest dignity among the *professions*, to render these farmers' colleges and industrial schools, that are now springing up in various parts of the land, among the most popular institutions of the day.

The Trustees of the college now consist of the Governor and Lieut. Governor of the State, the Speaker of the House of Assembly, the Superintendent of Public Instruction and the President of the College, Dr. Brown. These are made ex-officio members of the Board, and are associated with twenty-two other Trustees from various parts of the State.

TOBACCO.

As it is not every one who cultivates tobacco that understands thoroughly the best manner of handling the crop after it is grown, we give place to the following very judicious remarks from the *Com. Review*:

ON THE CURING AND PRIZING OF TOBACCO.

After having worked hard and raised good crops of tobacco, a great deal of money has been lost by Kentucky farmers from not properly understanding how it should be managed after it is ready for the knife. There is no great secret in the cultivation of tobacco. Like all other crops, when planted in due time, in good soil, well cultivated and kept clear of weeds, worms, and suckers, it will give a good yield; but the difficulty seems to be in bad management after the crop has been raised.

The plant should be allowed to stand in the field as long as possible before cutting, so that it may become thoroughly ripe, and should never be cut immediately after a rain if it can possibly be avoided, as the gum, which is very essential to good tobacco, is washed off. Great care should be taken not to bruise it or let the sun burn it after it has been cut. When the sun is very hot it should only be cut late in the evening, and when properly wilted, hung on scaffolds, which should be covered with thin brush so as to keep the sun from scorching it. If the weather be favorable, it should be allowed to hang out in the sun until it is well yellowed, after which it should be taken to the barns. The barns should be carefully prepared and the cracks well stopped, otherwise the tobacco is apt to mould, and will be exposed all winter to the wind and rain, which will materially injure it. As soon as the tobacco is housed, small fires should be kept under it until it begins to cure up.

When bright piebald or spangled tobacco is desired, such as is used by the manufacturers for wrappers, it should not be allowed to cure up slow enough to lose the yellow color, but

when it is about half cured, heavy fires should be kept up until the process is completed, which will require some two or three weeks. It now requires no more attention, unless a damp spell of weather occurs, when small fires should be kept under it to keep it from moulding. When the leaf can be cured, and the bright color retained without fire, it is much more durable, but this can seldom be done in Kentucky except during a very dry autumn, when the plant can be almost cured by the sun on the scaffold; but when it has to be taken in, out of the rain, which is almost always the case, the desired result cannot be obtained without the aid of artificial heat.

The above applies more particularly to the Green River country than to some other parts of Kentucky. In the counties bordering on the Kentucky river, the soil is not so well adapted to manufacturing leaf. The tobacco of this latter region is used almost exclusively for cutting purposes, for which the piebald or spangled is not required. This tobacco, almost devoid of gum, may be cured of a bright red color in good barns, without the aid of fire. This makes a very desirable tobacco for cutting.

After the tobacco is well cured, it should be stripped out as early as possible, and great pains should be taken to assort it properly. When the crop is large enough to make three sorts, the imperfect leaves should be carefully picked out to make lugs, the short ones for seconds, leaving none but the best for good. It should now be tied in small hands and bulked down straight and nice, covered up well with straw or fodder, and weighed down properly. When the proper season arrives hang it up in the barn and let it get thoroughly dry, and take advantage of the first warm gentle rain that softens it, to take it down, as it is difficult to do so without injuring it when too dry. Too much care, however, cannot be taken at this time, as half of last season's crop was damaged from \$1 to \$5 per 100 lbs. from having been prized too wet.

Have the casks made of good *seasoned* timber. Tobacco is often damaged ten times the price of a good cask, by being put up in green ones. Have your casks of medium size. In prizing fine piebald manufacturing leaf, put from 1,000 to 1,200 lbs. in a cask. It opens prettier and will bring more money than when pressed hard and matted together; rich, heavy shipping leaf put from 1,500 to 1,800 lbs. in a hhd. and of rich, heavy lugs from 1,800 to 2,000. In prizing cutting leaf, such as is put up in the region of the Kentucky river, the casks of good tobacco should weigh from 1,200 to 1,500 lbs. and light, chaffy lugs not more than 1,600 to 1,700 lbs. In all cases try and have all tobacco that is in a hogshead uniform and of the same quality, color and length (this is very important) and pack it carefully and straight. Nothing pays the farmer better than taking pains in handling his tobacco. If he could be about the warehouses and see the difference in the condition of different packages of the same qualities of the weed when offered for sale, he

would cease to wonder at the wide range of prices which are obtained for similar grades.

AMERICAN AGRICULTURAL MACHINES IN EUROPE.

A great trial of reaping machines came off not long since in France upon the Emperor's farm at Fonillense—all the three grand prizes for foreign machines were awarded to those of American origin. From the official account of the trial, we learn that forty-five machines were entered, but twenty-five only appeared on the ground for trial. Fields of wheat and oats were staked off into lots of equal area, and all the machines started in order at a given signal. The jury, after due trial, awarded the first prize, of 1,000 francs (\$200) and a gold medal, to Burgess and Key's improved American McCormick machine; the second prize of 500 francs and a silver medal, to Walter A. Wood, of Hoosick Falls, N. Y. for his improved Manny machine; and the third prize of 300 francs and bronze medal, to Robert & Co. of Paris, for their improved Manny machine.

The improvement of Burgess and Key is worthy of notice here, and may suggest ideas that may lead to valuable improvements in this country, where inventions in this line almost always originate. It consists in having hollow wooden cylinders, with tin Archimedean screws around them, so placed on an incline behind the cutter-bar, that the cut grain is worked side-wise, and by another cylinder twisted, so that on touching the ground, the butts lie toward the machine, and the grain is in a continual swath, ready for raking. This improvement has been introduced in other parts of the Continent and also in England. It is said to perform well and has cut at the rate of two acres per hour, and with the neatness which characterize the work of our American machines would probably accomplish more, or at any rate with greater ease to the team; for all this kind of work gotten up in the European workshops is of a very clumsy style.

Wood's machine of Manny's patent has had quite a run in England, still there is a strong prejudice existing in European countries against new inventions, and these great labor-saving machines are much slower in coming into use there than with us, where the grand national idea is to devise every possible means to economize labor and save the wear and tear of human bone and muscle. Notwithstanding American farm tools were glorified in the illustrious success of McCormick, in 1851, there

have not, it is said, been sold in all Europe, up to the present time as many reapers as McCormick has sold this year from his shop in Chicago, and these have not been equal to one in one hundred of the number that have been sold by other manufacturers in America; and although American genius has been crowned afresh by the hands of his majesty, Napoleon III. our inventors must not calculate on amassing fortunes by supplying France with reaping machines. The Europeans are large manufacturers, but their wares are chiefly made for foreign trade, and embrace every other article than those that relate to agriculture. The agricultural implements generally used in those countries are of the most rude and clumsy construction, and as labor is so abundant, there appears less disposition to employ labor-saving machines in farming than in other departments of industry. The demand for these machines is more rapidly increasing in India, Australia and South Africa.

LAND DRAINING.

Land draining is beginning to be looked upon as one of the indispensable requisites of good farming, and it is interesting to observe how rapidly it is gaining in public favor, in every part of the country where farmers have had an opportunity to witness the beneficial effects of the operation. The grand idea of the age is to devise every possible means to economize labor by the application of machinery for the performance of almost every species of work formerly done by hand at the sacrifice of human strength and muscle. In noticing the announcement of any new invention designed for any of these objects, it is interesting to observe how extremely active the inventive genius of the Americans proves itself to be. As soon as a valuable invention is presented to the public, a thousand minds are at once turned towards it. It is dissected and analyzed in all its parts, in order to see in what particular point it may be improved, and in the course of a very few days, the weekly report of patents issued announces improvement after improvement upon the same invention; and if the machine is one of considerable importance to the public, it will be but a short time before hundreds of improvements will be made and patented on machines for the same purpose, as in the case of mowing and reaping machines, sewing machines, &c. until they reach that degree of perfection and come into such general use, that the world is led to wonder how we ever managed to get along without them.

We are led to make these remarks in looking over the list of patent claims issued from the United States Patent Office, for the week ending August 16th, 1859, where we find no less than five patents issued for improvements in mole plows for land draining. It is but a few months since these machines were first employed in this country for this purpose. We have not kept an account of the number of inventions that have been patented for this purpose, but one or more have appeared in the list of patents for almost every week for months past. We have before expressed our opinion in the *Valley Farmer* in regard to the value of these machines for the purpose of land draining. That their use must be confined to a close, tenacious soil, and upon land but little undulating, no one, we think, will doubt. But there are thousands of acres of such land situated in the prairie States in which these plows may be worked, forming drains, if not permanent, they will be sufficiently so to convince their owners of the value and importance of employing some more permanent method of land draining. Excess of water upon much of the Western lands is the greatest drawback to successful farming. It is the chief cause of winter killing off wheat—it is destructive to meadows—it causes a delay of weeks in planting crops in spring. In short, these lands can hardly be made to yield one-half as much as they will when once properly drained.

[Written for the Valley Farmer.]

KEEPING POTATOES OVER WINTER.

EDS. VALLEY FARMER:—As it is difficult to save Irish potatoes through the winter, in this very changeable climate, I will give a plan which has succeeded very well with me. As soon as I dig my potatoes (which is not till October), I put them up in heaps, of not more than 6 to 10 bushels in a heap, mixing old wood ashes regularly through them; then cover with the same, say 3 inches; then dirt 8 inches, and after it settles add 3 inches more. I regard this as the best way that I have ever seen for keeping potatoes. If ashes are not convenient, dirt used in the same way will answer. Straw or hay, as it is commonly used, next to the potatoes, is worse than useless, as the ashes or dirt will not freeze so deep without as with it. [This does not accord with our experience.—Eds. V. F.] Ashes do not freeze as deep as dirt. Some straw thrown over the hills would be of use. Boards set up around the hills are beneficial and should be used where fowls are likely to scratch the heap. Smaller heaps would be better for winter use unless you have a cellar where you can keep without freezing.

Boone Co. Mo.

S.

[Written for the Valley Farmer.]

DRAINING TILE MACHINES.

EDS. VALLEY FARMER:—As I am desirous of making some draining tile, I should be much obliged to you if you would inform me where some good tile making machines could be purchased. Or if it is more convenient, will you hand this to some manufacturer or agent, asking him to write to me, as I wish to ascertain price of machine and the amount of work it will accomplish.

I made a few tiles by hand last summer, but it is slow work. I put them under ground last spring and they act admirably. Where it would almost mire a horse last year, I have now got splendid corn—having drained the land. I have done some draining with the plow but like tile far better. JOHN DRAKE.

Bethel, Morgan Co. Ill.

REMARKS.—We do not now recollect who have tile machines for sale. We will ascertain, however, and inform our correspondent next month. We are glad to learn that he is of the progressive class. Let farmers try draining their lands and the results will convince them of its utility.

SHADE TREES.

How beautiful, most beautiful of earth's ornaments, are trees! Waving out on the hills, and down in the valleys, in wildwood or orchard, or singly by the wayside, God's spirit and benison seem to us ever present in the trees. For their shade and shelter to man and brute; for the music the winds make among their leaves and the birds in their branches; for the fruits and flowers they bear to delight the palate and the eye, and the fragrance that goes outward and upward from them forever—we are worshipful of trees.

"Under his own vine and fig tree," or fruit tree—in his own vineyard and orchard!—what more expressive of independence and lordship in the earth? Well may the Arab reverence in the date-palm a God-given source of sustenance. Dear to the Spaniard is the olive, to the Malay his bread-fruit, and to the Hindoo his banyan, wherein dwell the families of man, and the birds of heaven build their nests.

Without trees, what a desert place would be our earth—naked, parched, and hateful to the eye! Yet how many are thoughtless of the use and beauty of trees. Most beautiful ever as God plants them, but beautiful even planted by the poorest art of man, trees should be protected and preserved.

If he is a benefactor who causes two blades of grass to grow where one grew before, how much greater is his beneficence who plants a tree in some waste place, to shelter and shade, to draw thither song birds, and to bear fruit for man? Plant trees, O man that hast waste land; and be careful of those that are planted, all ye sons and daughters of men.



OPERATIONS OF THE HYDRAULIC RAM ILLUSTRATED.

We have had considerable enquiry of late in regard to the utility of the Water Ram and have been asked who manufactured them. Many farmers have had them in use a number of years and would not dispense with them under any consideration. We have no doubt of their value and would be glad to see them in more general use.

The accompanying cut is from Cowing & Co. Seneca Falls, N. Y. manufacturers of an improved hydraulic ram, and it illustrates the use of the hydraulic ram. The ram is situated below the spring, and the water flowing from the spring, through a pipe, into the ram, forces a stream of water through a discharge pipe to a considerable elevation, whether perpendicularly or upon an inclined plane, into a trough, which may be placed in the stock yard and thus afford to stock a constant supply of pure running water the year round.

In the *Valley Farmer* for 1857 we explained the principle upon which the water ram acted, and gave the reasons why the water was forced to so great an elevation above the spring which supplied the water. Messrs. Cowing and Co. manufacture six different sizes, adapted to springs or brooks, and furnishing from three quarts to eighty gallons per minute. We do not know of any manufacturers of the water ram in the West.

G. W. KENDALL'S FARM.—A Texas correspondent of the *Newburyport Herald*, who has recently visited the celebrated farm of Mr. Kendall, former editor of the *New Orleans Picayune*, historian of the Santa Fe expedition, &c. writes as follows:

The evening of the second day out we arrived at Kendall's ranche. I found it a site for a fine estate when developed and improved; a symmetrical valley of some hundreds of acres with a brook running through it, enclosed on the four sides by ranges of low hills. Its location is thirty-four miles due west from New Braunfels, and thirty from his own residence. Here, in charge of an intelligent Scotch shepherd, and subject to his own weekly inspection, are his great flocks, amounting in the aggregate to nearly or quite five thousand sheep and lambs. He sheared this year 3,400 sheep, yielding, as he told me, 13,000 pounds of wool, for which he would realize 30 cents per pound. This year's increase of his flock was 1,500

lambs, worth (as they are three-fourths or seven-eighths Merino blood) \$2 per head a week old. This you will see yields the snug little income of about \$7,000, all of which is deserved by Mr. Kendall, for his perseverance in the business, conducted for a time under difficulties that would have been discouraging to any man of less energy of character. His sheep under his present system are easily managed, but require constant care.

They are divided into four flocks, each with its own herder and shepherd. They are turned out at sunrise to range the hilly sides, and return at evening. It is pleasant to see them come in at about the sunset hour, a cloud of dust at four different points of the horizon; the plaintive bleating of the sheep and lambs growing louder as they approach; then the sheep running hither and thither; the weary shepherds with their broad-brim hats and pistols in their belts; and the active and baying dogs.

Stock Raising Department.

THE WOOL-GROWERS' FAIR.

The wool-growers' exhibition was opened at Cleveland, Ohio, on the 4th of August, last, with a success hardly anticipated by the warmest friends of the enterprise, both as it regards the number of persons in attendance, and the number of lots and quantity of wool displayed. The number of lots on exhibition was one hundred and forty; and the quantity in pounds, six hundred thousand. Of these there were fifteen thousand fleeces from Ohio, and three hundred and fifty fleeces from Pennsylvania. On Friday morning the sales took place, at which three hundred thousand pounds were disposed of.—During the meeting discussions on the most important points of consideration for dealers and manufacturers were held, at which many useful and interesting items of information were presented.

William D. Cooledge, of Boston, who represented a large manufacturing interest in New England, made some interesting remarks that we deem worthy of a place in the *Valley Farmer*. He said they were assembled together as fellow citizens mutually interested in the growing of wool. He was satisfied that the business was yet in its infancy. Forty millions of pounds of wool were grown in the United States annually, where, with the facilities afforded by a tract of country so unsurpassed as ours, one hundred millions of pounds could be raised. In New England there was machinery sufficient to require eighty-six million pounds of wool, rendering an annual importation of nearly fifty millions necessary. We possess sufficient skill and capital to produce all the clothes worn by men and boys in this country; besides many of the fabrics used in clothing the other sex. He trusted the day was not far distant, when a more liberal policy would be adopted by Congress towards manufacturers; when the raw material could come to them at the East, as it is permitted to go to England. He decried the idea of the market being overstocked—it was impossible for them to overstock it. They must have their wool.—They had got a good price for their wool. They might raise as much as they would, they could not supply their machinery. The stores in New York are stocked with goods from England. He was warmly in favor of opening the doors to wool, duty free, and thought a very

different aspect would then be put upon affairs. Since the great increase of manufacture of delaines and carpets, the staple medium qualities of wool were in an increased demand, as well as the finer qualities for other uses. He gave his opinion of the sort of tariff likely to be most beneficial to manufacturers and producers, saying he did not desire an exclusive but a protective one.

Mr. Pond, a wool-buyer of Boston, gave some interesting figures. The amount of wool required for making the clothes worn in this country is 200,000,000 lbs. which might all be the product of this country. When the duty was taken off from wool in England and France, the result was an increased price for home produce, and an enormous production.

Mr. Willis, of Madison county, Ohio, stated that from data from eleven counties, they had over 11,000 sheep destroyed by dogs within the past year, according to the returns of the assessor. In his own county 50 per cent. should be added to this return, which would make throughout the State about 75,000 sheep destroyed by dogs during the past year. These at an average of \$1 50 each, would be valued at \$262,500.

We regard the institution of these fairs as an important movement to the wool-growing and manufacturing interests in the United States, and the discussion of the matters connected with this immense loss of sheep by worthless dogs, as the means of ultimately leading to suitable measures to put a stop to such a vast evil.

ANNUAL LETTING OF RAMS IN ENGLAND.

On the 7th of July last, Mr. Jonas Webb, of Brabraham, England, held his *thirty-third* annual South Down ram-letting, which we find fully reported in the *Mark Lane Express*.—This plan of annually letting the rams of the improved breeds of sheep is a very important one, both to the country at large and to the individuals hiring the animals. None but the best animals are let, and the farmer secures a cross of one superior animal one year, and the next he can avail himself of another equally good, saving the high price required for the purchase: and in purchasing the animal instead of hiring, the owner would frequently be induced to breed longer from a single animal than would prove for the good of his stock.

At Mr. Webb's public letting *fifty-four* rams from two to four years old, were let for the sum of \$6,880, or \$120 75 per head, which was

an average of about \$22 per head over that of last year.

At the close of the business the guests and visitors, to the number of 200, sat down to a dinner prepared for the occasion. In the order of toasts Mr. Webb gave "The health of our friends across the Atlantic;" in connection with which he alluded in a pleasant manner to the name of our young friend, Luther H. Tucker, Jr. Esq. editor of the *Albany Country Gentleman*, who was present on the occasion. Mr. Tucker replied in a very appropriate speech, in which he pays a just tribute to the distinguished breeders in England, as well as to their successors in America.

HORSE TAMING.

Not long since we attended a course of public exercises in horse-taming given by Mr. W. H. Rarey, brother of Mr. Rarey now in Europe engaged in reforming the vicious horses of those countries. We are not at liberty to describe the method pursued by these reformers of the animal character. The result of their efforts is known to the readers of the public journals throughout the country, but we will remark that the process is simple, and easily performed by any person who possesses the power of *self-control*. The system is one that should be studied, not only by farmers, but by every man, woman and child in the land. The system wherever it has been practiced has proved successful, even to subduing horses and other animals that had been regarded as the most dangerous and uncontrollable. The experiments that we witnessed, upon a number of unbroken horses, and some that had never been haltered and handled, and were regarded as almost valueless on account of their wild and untamable dispositions—in less than two hours time their very natures seemed to be entirely changed, and they became as docile and as tractable as pet lambs.

This is merely the result of kindness, exercised with an ordinary degree of judgment, and if universally practiced by all those who have the management of these animals, what an immense benefit would result from it? But how much greater would be the reform that would be wrought in the world, if every man would but adopt this system as his rule of practice among his fellow men? Let it be commenced in the family circle and extended through all the intercourse of life, and the world would at once be changed to a paradise. A change so easily wrought in the nature of an

animal possessing neither intellect nor reason, by such a system, what would it not accomplish if adopted as the rule of life by the highest order of creation?—while the reverse of this is almost the universal rule of practice, resulting in every species of crime.

Mr. Rarey charges \$10 for a course of lessons in horse taming, a cheap investment for every person whether he has horses to tame or not.

VALUE OF STRAW FOR FEEDING STOCK.

From the experience of Mr. Mechi, one of the best English farmers, straw should be regarded of much greater value than it is. He has given his views at length in the English agricultural papers, and regards it "a vital question for agriculture." He says that the present low estimate of the value of straw arises from the fact that unless properly prepared it is unavailable as food. In proof of its value he gives the result of some experiments he has made. In feeding ten Short Horn bullocks, about 30 months old, he gave a steamed mixture of 216 gallons of cut straw, six of rape cake, 3 of malt combs and 5 of bran—moistened with 20 gallons of hot water per day. He also fed 300 lbs. of mangel wurtzel; the whole cost, not including the straw and labor, is about \$1 00 per week. He says: "The animals are in a fattening and growing condition, and advance remuneratively. After feeding they lie down contentedly, free from restlessness." He further says: "The whole question may be said to hinge upon the condition in which the food is administered. It must be *moist and warm*, and the animals must have proper *warmth and shelter*. As a general rule, this is not the case throughout the kingdom; hence much food is wasted or mis-applied. Were I to give my bullocks the same quantity of cut straw in a dry state, they would not eat one-half of it; and besides, they would be restless and dissatisfied. This I know from experience."

At the London Farmer's Club the same subject was up for discussion. Here Mr. Mechi stated that 100 lbs. of straw contained the equivalent of 15 lbs. of oil. From analysis by a distinguished professor in an English agricultural college, the estimate of Mr. Mechi is more than sustained. His estimates have been published in Morton's *Cyclopedia of Agriculture*, where it is stated that each 100 lbs. of wheat straw, contains 72 per cent. of muscle, fat and heat-producing substances; of which

27 per cent. are soluble in potash and 35 per cent. insoluble. "The soluble fattening substances are equal to 18 1-2 lbs. of oil in each 100 lbs. of straw."

From these estimates (and none can be more reliable than those made by the English farmers, because necessity compels them to turn every available substance to the best advantage) it will be seen that the American farmers are losing vastly every year in following their rough mode in feeding and fattening stock.—This is not confined to cattle, but the same remark holds good in regard to horses and more particularly to hogs. Increased demand, and consequently the higher prices, with the advance in science, must ultimately lead our farmers to adopt improved systems of feeding.

POISON CHEESE.

We hear of frequent cases of persons being poisoned by eating cheese; the cause of this poisoning is still involved in mystery. If the cheese which produces the poisoning could always be traced in its manufacture to those sections in the West where *milk sickness* prevails, it might be reasonable to attribute it to the disease known under this name. But the peculiar sickness caused by eating this poison cheese frequently occurs in Europe and in this country where the milk sickness is unknown. Nor is cheese manufactured to any extent for market in any portion of the West, so far as we are able to learn, where this disease among cattle is known. Sausages, under certain circumstances of change, have also frequently been found to be poisonous; but whether the change that the meat of these sausages undergoes to produce the poisonous effects, is any way analogous to that of the poison cheese, we do not pretend to know; because we do not remember to have seen any definite opinion given from scientific men in regard to the former; and in respect to the cheese, the researches of the most distinguished chemists thus far have not settled the difficulty.

A number of persons in Brooklyn, New York, and in Baltimore, Maryland, have recently been poisoned by eating cheese. The authorities of Brooklyn have attempted to investigate the matter, and Dr. Geo. K. Smith was employed to analyze the cheese. But in his report he says he was unable to detect any poisonous substance in it. The cheese referred to, both in Brooklyn and Baltimore, was all manufactured in Washington county, New York, and may have been from the same dairy.

By referring to different works on poison, it will be found that the poison of cheese has often been sought for by the best chemists in Europe but with no satisfactory results. In Germany evils of this kind have occurred more frequently than in any other European country. It became so prevalent some years since that the German States investigated the subject, and legislative enactments were passed in consequence.

For a long time the opinion prevailed that the cheese acquired an impregnation from the copper vessels used in the dairies, and accordingly, the Austrian, Wurtemberg and Ralesberry States prohibited the use of copper for such purposes. This opinion, however, was proved by chemical analysis to be untenable; and the enquiries of Hanfield and Seturner have now rendered it probable that the poisonous property of the cheese resides in two animal acids, analagous, if not identical, with the *caseic* and *sebacic* acids. The symptoms produced by the cheese have been those of irritant poisoning. In some cases the irritant property has been supposed to be occasionally derived from certain vegetables on which the cows feed.

In the cases referred to in Brooklyn, the symptoms were precisely like those produced by poisoning from arsenic; and in one of the cases the hydrate peroxide of iron—the antidote to arsenic—was used and gave immediate relief.

We hope that the onward march of science will soon disclose, not only this mystery, but remove the impenetrable veil that has ever surrounded that greater mystery—the *milk sickness*.

HORSE SHOWS.

The example set by a few spirited men at Springfield, Mass. of getting up great horse-shows, open to all the world, has awakened a like spirit all over the country. The tendency of this movement will, no doubt, be towards the improvement of this indispensable domestic animal, and if the improvement only appears in the right line we shall be rejoiced. In this fast age there is a growing demand for fast horses; but it is not alone the horse that will make the quickest time around a mile track, with a light rider upon his back, or before a pair of skeleton wheels, in a two mile trot, that is alone most important—but the horse of *all work*, possessing the most strength and endurance at productive labor, that we most need. And this we hope will ultimately follow this mania for horse shows.

Since the Springfield show, a greathorse show has come off at Dayton, Ohio, and another at Piqua, in the same State.

At Lancaster, Ohio, there will also be an exhibition of horses; and at the Ohio State fair at Zanesville, in October, a display of horses and mules is to constitute one of the grand features of the show. Last year, at Kalamazoo, Mich. the managers of the Society made arrangements and held a great horse show which met with such encouragement as to warrant arrangements for another, which is set down to commence October 11th. Besides these, the most of the State and county societies which hold their fairs the present fall make the display of horses the leading feature of attraction of these great annual festivals.

EASTERN CATTLE MARKETS.

The weekly reports of some of the Eastern cattle markets afford some interesting facts for the consideration of Western farmers, upon whom there is a constantly increasing demand for meat for the supply of the cities of the seaboard.

In glancing over the New York market report for the week ending with August 17th, we gather the following facts: The total number of beef cattle received for the week was 4,598 head; to which add milk cows, veals, lambs and swine, making a grand total of 26,329 head—with the exception of 20 cows would be chiefly required for the weekly consumption of the city. The beef cattle alone were received from the following States, viz: From New York 635 head, Pennsylvania 42, Ohio 761, Indiana 191, Illinois 1,134, Kentucky 316, Michigan 119, Missouri 371, Pike's Peak 4, Canada 39. For the previous week 4,739, or 137 head more were received, divided into somewhat similar proportions from the States named.

But what is a matter of great importance to our Western farmers and stock growers is the condition in which these animals reach the market and the relative price they bring. The prices for this week were somewhat depressed, owing to the absence of many citizens to their summer retreats, and to other causes. The best grades, of which there was but a small number, comparatively, sold for 10 cents, and upwards, net, per pound; while the majority brought but six cents per pound, and some sold even at less figures; the latter prices resulting in actual loss to the drovers, while the best grades paid a profit.

The cost per head for the transportation of these half-fattened animals was equal to those that brought nearly double the price in market, illustrating the fallacy of sending beef of inferior quality long distances to market, when with a small additional outlay for care and feed the highest prices may be realized. Well fattened animals will always command the highest prices, while inferior grades must very frequently be sold at an actual loss to the farmer and the drover.

SHEEP IN TEXAS.

There is a sort of mania just now about sheep in Texas. The experiments began a few years ago by Mr. G. W. Kendall, and the success that has finally followed his efforts, after going through all the phases of ill-luck, losses and discouragements, incident to an enterprise of that kind, in a new country, on so grand a scale, but which perseverance has at length overcome, has induced many others to establish great sheep farms in that State—a country admirably adapted to that kind of stock. Maj. Wm. Leland, one of the proprietors of the Metropolitan Hotel in the city of New York, is one of the number who has followed the lead of Mr. Kendall, with every prospect of success. There is, besides the fine wool flocks established in Texas, a constant and large importation of coarse wool sheep from Mexico. It is estimated that a fourth of a million of Mexican sheep have crossed the line into Texas since 1859, and the number is constantly increasing. These Mexican sheep—crossed with Northern stock—make a valuable progeny, both for wool and mutton.

Texas is a new country with an abundance of cheap land and with a climate admirably adapted to sheep raising, and with a sparse population that have not overrun the State with vicious and worthless dogs. We shall, therefore, expect, before many years, to hear that Texas is noted for its immense flocks, and to see Texas mutton in all our large Eastern city markets. Texas cattle are now met with almost every week in the butcher's yards; and sheep may be transported from that distant State with more safety and with less waste of flesh and at less risk to the owner than cattle.

Now is a good time to fatten stock of all kinds. Don't wait for cold, stormy weather to begin this operation. While the weather is warm and favorable stock will fatten doubly as fast on the same food as in cold weather.

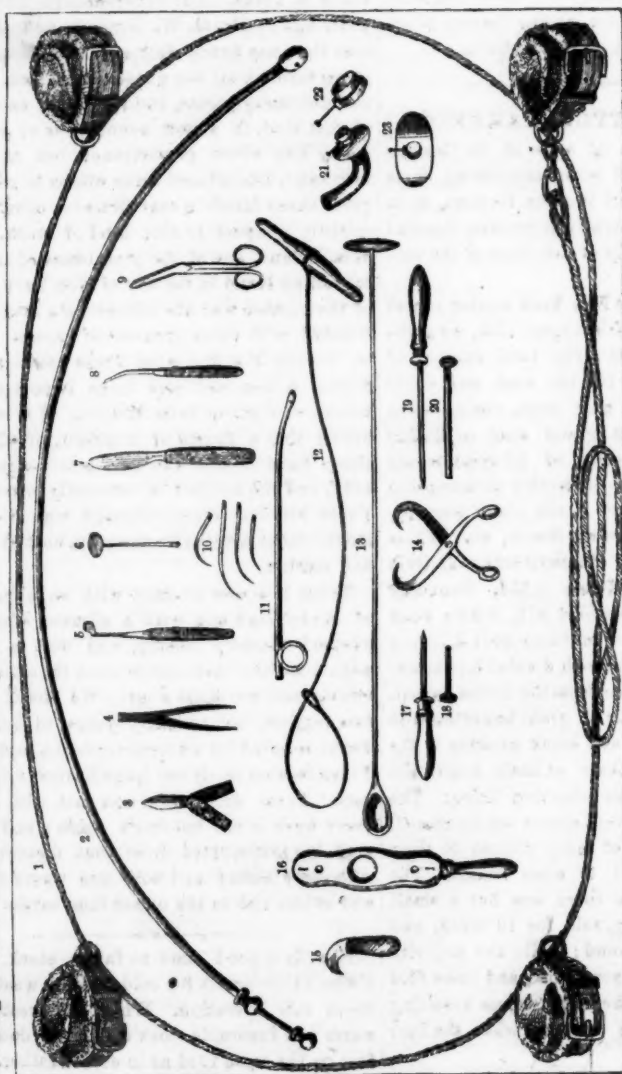
VETERINARY SURGERY.

We are pleased to learn that the teaching of the science and practice of veterinary surgery is beginning to attract the attention of the citizens of the United States. One College is in successful operation in Boston, Mass. under the direction and management of Dr. George H. Dadd, V. S. and we do not know but there is another in operation or about to be established in another section of the Union. At any rate this important department of the healing art is to form a special branch of the several agricultural schools and colleges now about being established in several of the States.

There is now invested in the United States many millions of dollars in domestic animals, and until the opening of the school referred to there was no regular system of teaching or practice adapted to these animals in this country, while the profession of M. D.'s for the human race has long been filled to overflowing.

The ignorance manifested in this department of surgical practice in the recipes given in the July number of the *Valley Farmer*, and which are going the rounds of the agricultural press, show the importance of light in this respect.

The following cut, at our request has been sent to us by Dr. Dadd, which gives the representation of some of the Surgical Instruments used in *Veterinary Practice*:



EXPLANATION OF THE ABOVE CUT.

1. Hobbles, or Casting Apparatus. 2. Cattle Probing, used for liberating gas from the stomach, or for pushing downwards substances which may have lodged in the gullet. 3. Thumb Lancet, used for the purpose of opening an abscess, or for bleeding. 4. Dissecting, or Artery Forceps. 5. Gun Scarificator. 6. Tube for Obstruction in Cows' Teats. 7. Knife used in performing the operations of Castration and Spraying. 8. Bistoury, used in opening the Peritoneum. 9. Curved Surgical Scissors. 10. A Set of Suture Needles. 11. Female Catheter, for evacuating the bladder of urine. 12. Midwifery Tractor or Slip Noose. 13. Instrument for reducing an inverted womb. 14. Midwifery Clasp-Hooks, used for the extraction of the foetus. 15. Craniotomy and Embryotomy Knife. 16. Mouth-Gag, used in connection with the Probing. 17. Trocar used for puncturing the chest in dropsy. 18. This is the Canula which slips over the Trocar, and conducts the water from the chest when the cutting instrument—Trocar—is removed. 19 & 20 are Trocar and Canula for puncturing the paunch in cases of "hooves," or tympanites. 21. Tracheotomy Tube, used for the purpose of relieving an animal when afflicted with spasm of the larynx, &c. 22 & 23. Two different views of the shield of the Tracheotomy Tube.



Horticultural Department.

CULTURE OF THE PEACH IN THE SOUTH.

The peach is a native of a warm climate, and in those portions of the Union where it is perfectly adapted, there is the least attention paid to its cultivation. In Tennessee, Alabama, Mississippi, South Carolina and Georgia, the peach grows in the greatest perfection, and without those failures from frosts and the diseases which cut off the crop in the more northern sections of the Union four years in six. Yet, notwithstanding this liability to failure, peach-growing in these northern sections of the country has proved extremely profitable.

Where peaches are grown for the markets of the northern cities, no one thinks of relying upon seedling varieties, while at the South, seedlings constitute the majority of the trees planted. In portions of South Carolina and Georgia, convenient to railroad and steamboat transportation, some enterprising fruit-growers have gone systematically into the business, and planted the most approved market varieties, which find a ready sale and high prices in the more Northern cities. As the means of transportation increase, this business might be largely extended from other points in the South, much to the profit of the cultivators, while, at the same time, they contribute to the people of our cities one of the greatest luxuries of the garden.

But our object in alluding to this subject now, is to speak of another branch of the trade. There are many inland positions where it is not yet convenient to ship peaches in the fresh state to market, but a profitable trade might be built up in furnishing a supply of dried and preserved peaches. In some parts of Tennessee and Alabama, this drying process is already carried on to a considerable extent by the country people, who know but little of the superiority of the catalogue varieties over the

common seedlings. For drying, seedlings answer a tolerable purpose, but if the improved varieties were substituted for them, their value would be nearly doubled, while, from their increased size, the labor of preparing for market would be considerably reduced.

Some persons from the North, who know the value of peaches put up in cans, in their fresh or uncooked state, now visit annually some of these southern sections, where the best peaches are grown, and do a prosperous business in putting them up in cans.

The process of budding is an extremely simple one, which a child can readily learn, and there is no bush or tree which is more easily or successfully budded. With a little knowledge of the process and of the most proper period to perform the operation, one failure in a hundred need not occur. Those who practice budding can easily set one thousand or twelve hundred buds in a day, with an attendant to follow and bind them. In our number for June, 1858, we gave all the necessary directions, with cuts and illustrations for budding. Our catalogues contain but a few hundred varieties of the peach, and fifty, perhaps, will embrace all the choicest of these, while fifteen or twenty are as many as would be advisable for any one to plant for these purposes, selecting only those best adapted to each particular locality. It is probable that the fifteen or twenty choicest kinds in the catalogue, are the selections from many thousands of seedlings which were not worth the ground they would occupy. This is the character of the majority of those now grown from seed, and constitute the reliance of most of our Southern planters for this delicious fruit.

Some little preparation is necessary for drying and preserving peaches on an extensive scale; but the cost need be but trifling. Both branches may be carried on together to great advantage, selecting those peaches for drying, least adapted for putting into cans. For drying peaches with facility, a dry house should be built; one of logs will answer all purposes, but a brick one would be preferred. The house should be arranged with two or three tiers of cross-bars or joist, upon which rails may rest, extending through the end to an equal length outside, so that the hurdles or trays on which the fruit is dried may be run in and out as upon a railroad. Above these rails, in each tier, an opening or horizontal door in the end of the building should be made. The hurdles or trays should be made with net-work, or open lath bottoms, through which the heat and

air could readily pass. A common box-stove in the centre of the building—at one end—will constitute as convenient a furnace as any that can be made. A small opening in the roof should be made to serve as a ventilator for the escape of the heated air, and the moisture expelled from the fruit, and will facilitate the process of drying. By this method of drying, the fruit is never burned, and the quality is much superior to that which is dried on the old fashioned stone and clay kilns.

There are a great variety of methods for sealing up fruits in cans and jars—but, for transportation to market, nothing has been found superior to the round, common, quart tin cans, managed in the following manner: A common furnace, under an open shed, is best, into which two or more large tin kettles should be fitted, but arranged so that they may be moved and changed at pleasure. Into one or more of these the prepared fruit is placed to be heated, *not boiled*. At a convenient distance from this a similar furnace is required, but of a capacity to receive a square, sheet-iron pan, large enough to hold, say six dozen cans. This should be made one inch deeper than the height of the cans. This pan is to be filled one-third or more with water and as the cans are filled from the kettles with the fruit just raised to the scalding point (and to preserve the fruit with most of the natural richness of flavor, the heat should not be continued beyond this), they are set in the pan of boiling water. When the whole are filled, a person who is familiar with the use of the soldering iron, must commence to secure on the caps. In each of these caps a small vent hole must be previously punched for the escape of all the air that the heat can expel. After the pan is thus filled with cans, and their tops soldered on, each vent must be closed with a drop of solder from the iron, while the water is at the boiling point, when the work is finished.

In order to prevent the escape of heat from the large surface of water in the pan, a cover should be provided for it of snugly-fitting pieces of boards, each equal to the width of a single row of cans; in this way the entire surface may be kept closed, except the row upon which the workman is engaged in closing. A change of kettles is necessary, in order that the work may be continued without intermission, as each kettle, after it has once been used, must be thoroughly washed, to prevent the burning of the syrup that may have dried upon the inside so as to impart an unpleasant taste to the succeeding kettle-full.

The same method may be employed in putting up tomatoes. But unlike peaches the tomatoes are improved by thorough cooking, and this is necessary for their perfect preservation, and in order to facilitate the process, and save the boiling down of a large excess of juice, a portion of the liquid may be dipped off.

The *Valley Farmer* having a very considerable circulation at the South, we throw out these hints, with the hope that our friends in that section of the Union may profit by them, while at the same time they may prove of interest to our readers in general.

CULTIVATION OF BLACKBERRIES.

If one will but observe the blackberry growing in its wild, uncultivated state, it will be found that there is a multiplicity of kinds, differing but slightly it is true, yet varying from the small, bitter, half-developed berry to the round, medium sized, and from that up to the largest mammoth dimensions of the most perfectly grown berry, with quality and flavor varying according to the size and beauty of the fruit, or equal to the difference between the wild crab-apple and the largest and best flavored pippin; yet the difference in the size and quality of this fruit is not greater than that which marks most other of wild and cultivated kinds—nor is any other kind of fruit more improved by cultivation than the blackberry, for we fully proved this by experience more than twenty-five years ago, and long before we ever heard of attempts to reduce this fruit to garden culture by others.

During the past summer we have watched, with some interest, the various kinds of blackberries now under cultivation, with a view to compare their relative qualities.

The New Rochelle, or what is sometimes erroneously called the *Lawton*, probably stands at the head of the list for size and productiveness, but it is inferior in quality to some others. The quantity grown upon a single bush would surprise any one not familiar with its character. In rich soil, the stems are large, often exceeding an inch in diameter, and yet we have seen these so loaded with fruit as to require staking to keep them up from the ground. To have the fruit of the *New Rochelle* in perfection, it should be planted in a warm situation, with an exposure to the sun, and then the berries should not be picked for a week after they have turned black to have them even tol-

erably sweet. For cooking or for wine, where the soil and climate are suited to it, this is the best and most productive variety that is grown.

The Dorchester, or High Bush, is less vigorous and less productive, but the fruit is far sweeter than the New Rochelle. This variety originated in Massachusetts, and was for a long time known as the High Bush, but some of the plants were sent to the Hon. Marshall P. Wilder, at Dorchester, which were cultivated and produced fruit in the highest perfection, and were in honor to that gentleman afterwards called the Dorchester.

The White.—Varieties of the blackberry are very frequently met with in their wild state, of a white or of a brownish, yellow cast. These have been quite extensively cultivated, but beyond their novelty they possess no merit over many of the kinds found growing wild in the fields.

Every family in the country may, with very little labor, have a patch of blackberries, that will pay, in the luxury they will yield, many times the cost of the labor; and then when grown at home they are always handy, and may be gathered at any moment when wanted. With our experience in the matter, we should never incur the expense of procuring any of the cultivated kinds for home planting, unless it should be for market, when we would prefer the New Rochelle, on account of the large size of the berries, and the immense quantity it will yield. In order to secure the best kinds from the fields for planting, a selection should be made at the time the fruit is ripe and in the greatest perfection, when the plants bearing superior fruit may be marked by tying a piece of white twine or strip of cloth upon them, so that they may be found and dug for transplanting in the fall or spring. Perhaps many who would find it to their interest to plant a patch of these, may now remember where they have gathered, the past season, fruit of the largest size and best quality. The effects of removal and proper cultivation, it may be expected, will increase the size of the fruit, improve the quality, and nearly double the quantity from a given number of plants. When the plants are taken up, as much of the root should be secured as possible, and the tops of the plants shortened to eighteen inches or two feet in length. The ground should be rich and moist, and well prepared for the planting. They should be set in rows six feet apart, and three feet apart in the row. The third year after planting, a full crop of fruit may be expected. In the

spring of each year the old plants should be cut out (for the stems are *biennial* and die after having once fruited), and the young plants should be shortened to two-thirds their original length, or not to exceed four or six feet in height.

The blackberry from the fields is becoming an important crop; the quantity sold the past season, gathered in a single State, has amounted to more than two-hundred thousand dollars, affording a healthful fruit to thousands in the cities, and giving support to many hundreds of persons in gathering and sending them to market.

"TYLER'S TREE PERMEATING POWDER."

The world is full of impostors, men trying to gain a living by their wits, without labor, by imposing upon the innocent and unsuspecting. We scarcely take up a newspaper without our eyes meeting with advertisements, setting forth in glowing terms some business by which a fortune can be made, or some new and wonderful discovery for the cure of disease, or some valuable seed, vine or fruit, surpassing anything heretofore known. These advertisers will either secure the names of thousands of persons throughout the country, which they manage to get by a reference to the subscription books of various agricultural papers and other periodicals, and send their circulars direct to them, or they advertise that on the receipt of one or more postage stamps they will send a circular giving most valuable information touching some important discovery, or the cure of consumption or some other formidable disease; when, in fact, it is found, that these circulars when received prove only advertising mediums for the sale of some worthless nostrum or quack medicine at a price perhaps a thousand per cent. above the cost of the simple ingredients of which it may be composed.

An imposition of this kind has been practiced upon thousands of persons living in the remote parts of the country, and to a very great extent among our Western farmers and fruit growers, through the means of circulars, setting forth the wonderful powers of "Tyler's Tree Permeating Powders, for the protection of fruit, forest and shade trees, shrubbery of all kinds, field and garden seeds, plants and vegetables of every description, from worms, bugs, flies and insects that are known to infest almost every orchard, field and garden throughout the land." The mode of application of this wonderful ex-

terminator of all kinds of bugs, worms, borers, lice and insects, is to put a little of the powder under the bark of the trees through an incision, and to soak field seeds in a solution of one table-spoonful of powder to one gallon of water, &c. The advertiser proposes to send powder sufficient for 30 trees for one dollar. The advertiser does not answer the problem, If so small a dose of this extraordinary powder put into the circulation of the tree by inoculation will kill and destroy the curculio in our plums and cherries, the borers in the trees and the caterpillars that devour the leaves, whether the same will not poison, kill and destroy the persons also who partake of the fruit. This is a serious question, and we advise all who receive a circular from Mr. Tyler, or any of his agents, to obtain a guarantee that while the powder kills the naughty insects it will not also poison the "humans" too, who eat of the fruit. But perhaps our fears may be set at rest on this score when we are told that from the examination of Prof. Johnson, of Yale College, these wonderful powders are nothing but the calomel of the shops, and sent off at the rate of \$10 or \$15 a pound, and that while it may work the destruction of the insects it will only thoroughly physic our children who partake of the fruit.

Light has been thrown upon this subject through the agency of Mr. Judd, of the *American Agriculturist*, who received a copy of the circular, forwarded to him by a farmer in Iowa, who had received the copy from the central office in New York city. The gentleman sending it states that such circulars may be found in almost every family in the West. On receiving this circular the editor of the *Agriculturist* at once sent to the office from whence the circular emanated and procured a package of the powder, and obtained the analysis through Prof. Johnson as before stated. The office where the extensive business is carried on of supplying the verdant ones with this tree powder proves to be the same office where the agency of the celebrated *Honey Blade Grass* humbug was carried on so extensively last spring. The honey blade swindle having exploded, the same game is played under another phase. Several other similar humbugs have been exposed by the *Agriculturist*, and if the conductors of every other paper would pursue the same course, these swindling knaves would be compelled to resort to some honest means to acquire a living.

We would caution every one who may receive a circular setting forth the extraordinary vir-

tues of certain unknown medicines, whether for trees or for members of the human family, to disregard them altogether, and also the numerous advertisements requiring a postage stamp for some agency or secret by which large sums of money may be made. No man engaged in an honorable business will be disposed to withhold the nature of the business he advertises. Any reserved secrets that are to be divulged through letters or private circulars of the advertisers, are very likely to be for the purpose of practising a fraud upon those who write for them.

HOW TO GROW SEEDLING STRAWBERRIES AND GRAPES.

A correspondent wishes to know when and in what manner the seeds of strawberries and grapes should be planted in order to procure new varieties.

The very laudable disposition is beginning generally to prevail to produce seedling fruits with the view to obtain new and improved kinds, and although some hundreds of thousands of seedling strawberry plants have been grown in order to produce the small number of improved varieties that now enrich our gardens, as well as the pockets of numerous cultivators; yet small as the number is, there has been a marked and decided improvement in the size and quality of the fruit—an improvement that is worth the life-time, not only of one individual, but of a dozen, to secure. And we think with what has already been gained in this line still further improvement is more easily accomplished; and with the increased number of individuals now engaged in growing seedlings we expect yet to see wonderful results.

In regard to grapes there has likewise been a great improvement in the quality of hardy grapes adapted to our climate in the new varieties that have recently been brought into notice. These, however, generally have not been from new seedlings, raised with the view to improvement, but mostly (through the increased knowledge and improved taste of cultivators), have been discovered growing wild in the fields and forests or have resulted from chance seedlings that have sprung up in gardens and fence corners, until now the improvement in the grape is scarcely less than in the new seedling strawberries that have been raised. But recently we have met with thousands of seedling grape vines that have been raised by gardeners and amateurs, which, when they come into bearing, we may reasonably hope that some of them will

prove exempt from the diseases incident to some of the old standard sorts, and in every way improved varieties adapted to our own soil and climate.

But to the questions we were requested to answer: The most proper time to plant the seeds both of the strawberry and the grape is as soon as the fruit is fully ripe; but either may be planted in the spring if the seeds have been saved and dried, but with less certainty of vegetating than when planted while the seeds are still moist from the fruit. The strawberry seed is small, and the young plant is extremely weak and delicate, and consequently requires more care in protecting it from the effects of dry weather and a burning sun. We have generally succeeded best with strawberry seedlings, by planting the seed, or the mashed fruit, in boxes of sandy soil and placing them where they are exposed to the sun only in the morning and evening. The seed should not be planted more than a quarter of an inch deep, and the certainty of vegetation will be increased by placing over the surface of the soil a light covering of moss. Usually the seeds will vegetate immediately, and in this case the young plants will require some winter protection; but if the seeds are not planted until after they have been dried awhile they will not grow until the following spring, when, with proper attention, they will become firmly established by fall, and may be transplanted to the open ground, and the following season will produce some fruit; and from this, and the appearance and character of the vines, some idea of their value may be formed, and the least promising plants may be destroyed. This process may be continued for a season or two longer, until all but the best are rejected and cast out.

Grape seed may be planted in similar soil in the open garden in the fall, or the seeds may be kept in boxes of sand and exposed to the weather during winter, and may be sifted out and planted early in the spring, when they will readily vegetate. Three or four years will be required to test the character of new seedling grapes.

IMPORTANT TO GARDENERS.—A gardener having occasion to newly paint the wood work in his green house, determined to make a trial of the theory of absorption of heat by black color, with the view of promoting the maturity of his plants and shrubs by means of a greater quantity of caloric. In the preparation of the paint he used coal tar; that is to say, tar produced by the distillation of coal in the manufacture of gas. This coal tar, besides the advantage of its

color, offers considerable economy in painting, being about one-eighth of the price of the material generally used in mixing black paint. The painting here in question was executed before the setting in of winter. On the return of spring the gardener observed, with no less surprise than satisfaction, that the spiders, and other insects, which had infested his greenhouse, had totally disappeared. He, moreover, remarked that a vine, trained on an espalier, which, for the space of two years, had been sensibly decaying, and which he had purposed to uproot, for the purpose of planting another in its place, had acquired such renewed health and vigor as to be capable of producing excellent table grapes. Having applied his new paint to the props, trellises and espaliers of all his sickly trees and shrubs, as well as those which, though all in bloom, were being devoured by insects, success again crowned his experiment. Caterpillars and snails disappeared, as the insects had vanished from the greenhouse. The fruits produced by the trees thus treated have elicited the approval and eulogy of purchasers. Similar experiments tried on the Gironde have, it is said, been attended by similar excellent results.—[The Bulletin.]

[Written for the Valley Farmer.]

MONTHLY HINTS FOR THE GARDEN.

BY CAREW SANDERS.

OCTOBER.

ON THE CARE AND MANAGEMENT OF TREES AND PLANTS RECEIVED FROM THE NURSERY.

The season is approaching when the farmers and tree planters, and all those who are entering into, and extending the culture of fruits, will be receiving their trees, some from the East, some from the West, and some from their friends, but mostly from the nurseryman, and as the success of the trees in life is quite largely dependant on the necessary and proper treatment they receive after they leave the nurseryman's hands, we think a few hints on the subject will not be out of place at this time.

These hints are not however intended for those who know already how to manage their trees when received, but for the many who do not know exactly what to do with their bundles or boxes of trees under certain conditions. The nurseryman may perform his part of contract well—the trees may be taken up with good roots, and be well packed, and reach their destination in a moist, plump condition. Yet from the unskillful or bad management on the part of the planter, either before or at planting, bad success and ill results may follow, and the nurseryman be blamed, because his tree did not live and do well; when, in reality, no

one else is to blame but the planter himself. No honest nurseryman will take delight in hearing of the death of his trees, even if he should have the filling of their places again, but would prefer they should live and flourish, and thus give satisfaction to the purchaser; nothing short of which should afford gratification to the raiser and seller.

Living nursery trees are somewhat different from most other commodities, or articles of commerce. For instance, a man may buy a pair of boots or shoes of a tradesman, and provided they are worth the money he gave for them—are as good as he ordered, and he is satisfied with them at the time of buying—he may, if he pleases, next day, stick his toes into the fire and burn his boots off his feet. The shoemaker is not blamed or held to account for their being gone so soon. Not so with the trees. If a man buys trees, and after they are his own, he goes to work and cuts where he ought not to cut, or leaves uncut what he ought to cut, or exposes the roots to the freezing air of a winter's night, or the drying winds and sun of a winter or spring day, and they do badly and die in consequence the nurseryman is held to a certain extent accountable and blameable, even if not by the maltreater himself, by the neighbors and passers by, who may not be acquainted with the dangers and mishaps the poor trees have had to undergo; and the nurseryman is unjustly injured in reputation thereby. It is to the interest of all concerned that the trees and plants should do well—to the buyer for his own sake, and to the nurseryman for his reputation's sake; and they should stand and become living advertisements of the skill and care of both.

As there are various contingencies which may arise and require special management, we shall try to think of them all, and recommend the plan we would adopt in like cases.

And first, a few words on fall planting. If fall planting is adopted (and it may be with decided success), we favor planting as early after the trees have matured their wood, shed their foliage, and are fit to transplant as possible.—The rains will settle the soil closely and compactly around the roots, the cut ends of which will callose over, and even emit fibres; the tree will be less subject to upheaval by frosts, and to be rocked about by winds, than if planted immediately before the approach of winter. But do not plant in the fall if your ground is not well prepared; better heel the trees in and prepare the ground during the winter, than plant in a hurried, ill-prepared manner.

HEELING IN TREES TO LAY OVER WINTER.

Trees may be laid in the ground by the roots, or "heeled-in," as it is termed, to lay over winter, with entire safety; but we assume that any tree that has been taken up in fall, is more liable to suffer by evaporation, causing shriveling of the wood and shrinkage of the buds, than if it had remained where it grew; but in hardy trees, properly heeled in, the injury (if any) is almost imperceptible. In fact it may run all the way from death to the tree, to entire freedom from harm.

A few degrees North of us, on the prairies, it is recommended to bury the trees, tops and all, a practice, doubtless, quite advisable, for a region of country where the winds are so incessant, searching and severe; but unnecessary here, we think, with hardy trees, as the apple, pear, &c.; though we know it is better for the soft-wooded, pithy, and somewhat tender plants, as the raspberry, rose, &c.; and these must be buried in a dry place, for the presence of moisture, with cold surrounding them, would be more fatal than exposure.

Select a dry piece of ground, as a ridge or slope, where water will run off freely, and if sheltered on the North and West sides, by the woods or buildings, so much the better. If a ridge, commence by opening a trench two feet wide, running across it. Then proceed to unpack your trees—but do not thrust a bundle in at once and fling in clods and dirt all around the outside, leaving the inside of the bundle with no soil around the roots—as the air will then get in and dry the roots—water will stand and freeze and thaw around them, and invariably do great damage to them. Untie each bundle and separate every tree; then take two or three at a time and place in the trench in an upright position, having one man to hold and another to fill in the soil. Fill in with fine soil, as you proceed; carefully, so that every root and fibre is as well covered as if the trees were planted. They may stand in broad rows, of several trees in width, and as long as you need, opening the trenches to fill in the last trees as you go along. Finally a bank may be raised along the row, six to nine inches above the level of the surface, and as much above the collar of the trees. This will effectually throw the water off the row, and bury the roots so deep as not to receive injury from freezing and thawing while remaining in this temporary condition. Trees laid in, in this manner, will keep perfectly fresh till spring, and it will be an advantage to have them on hand, to be ready at

any time, when weather, ground and time permit to plant.

TREES RECEIVED IN SPRING.

Trees when received in the spring, even if all is ready to go on planting, should be separated, assorted and arranged from the package, and heeled in temporarily, near the place of planting, rather than plant them out of the box or bundle, as a few hours exposure to the drying sun and wind of that season may do incalculable injury to their roots. A few only should be taken out at a time as the planting progresses.

TREES WHEN RECEIVED IN A FROZEN STATE.

It sometimes happens from delay and being shipped late, trees pass through a frosty spell, and get frozen through from outside to centre—all the moisture in the packing material being frozen solid, and the trees all cemented together. The best plan to adopt in this case is to place the box or bundle entire in a cool, dry cellar, where the temperature is some degrees above freezing, but not too warm or moist. There let them remain until they are fairly thawed out, which will be gradually; then, if the ground is open, and the temperature outside suitable, they may be unpacked and laid in. Sometimes they are received during a short, sharp, frosty spell, of a few days duration, though the frost may not have reached the roots, or in the least affected the trees; they had then better be placed in the cellar till the frost is over, as exposing the fibrous roots to the frosty winds in heeling them in would of course be more or less injurious to them.

The second best plan if a cellar is not at hand is to bury the whole package in the ground and cover well over with earth, and there let them remain till a thaw comes, and the whole mass is thawed out thoroughly.

If either of these two plans be impracticable, one from want of a cellar, and the other because the ground is frozen so hard as not to be easily broken up, the last remedy is to bury them in a big pile of straw or hay, or light, littersy manure (without heat), on the surface of the ground; and in either case the probability is that they will come out all right and without injury.

PLANTS GROWING IN THE BOXES.

Occasionally, from being packed too moist and close, and being a long while on the road, and perhaps passing through a warm spell,

plants, especially those of a more excitable nature, as the rose, gooseberry, &c. will commence to grow. We have seen them make shoots from three inches to a foot long. Of course such growth is always tender, etiolated and brittle, and will be sure to get killed on exposure. On examination it will generally be found that there are plenty of dormant buds left, in which case all those that are started may be rubbed off; and when the necessary conditions to growth are again present, the others will swell out and grow, and preserve the life of the plant in all its wonted strength and vigor.

HEATED TREES IN BOXES.

Evergreens from being packed too moist and tight, without air to the interior, are liable to become heated. It depends altogether upon the tenderness or otherwise of the plant, and the degree of heat to which they are subjected, about their living. Very little can be done for them. They should, however, be unpacked immediately and heeled in, in such a situation, as to let the moisture gradually dry away from the foliage, but the tops must not be exposed all at once; they should be thinned and spread out and covered over with straw, and exposed by degrees.

TREES THAT ARE DRIED UP.

This too often occurs from bad packing; the quantity of moss or other material and the tightness with which they are packed, must be proportioned to the distance they have to travel, and the time they are likely to be on the way. If from too scant and loose a supply of packing material, unusual delay, or other causes, the roots of trees get dry and shrivel, efforts must be made to restore them to their full, plump, normal condition again before planting out; and burying them in the ground, tops and all, is again the remedy. They may lay from ten days to two weeks in the ground, and if anything will resuscitate them, that will. A more severe pruning in of the top will also help plants when in this state.

We hope these remarks will be received in the spirit in which they are given, deferentially and modestly, and that they may be taken as an earnest of our wish and desire, that all who purchase trees, shall have good luck with them and give the buyer and seller both pleasure and satisfaction. If any person whose eye meets this can suggest any additional hints, or give a better plan throughout, we for one shall be heartily glad to see it and profit by it.

St. Louis Nursery, Sept. 16th, 1859.

GRAPE CULTURE IN MISSOURI.

BY PROF. G. C. SWALLOW.

[Continued from our last.]

Having ascertained the conditions of soil and climate best adapted to the successful culture of the vine, it has been my aim, during the progress of the Geological Survey of Missouri, to determine how far these conditions are fulfilled in Missouri; to what extent and with what success the vine may be cultivated in our State, and the advantages to be derived from its cultivation. In order to secure the most accurate data for our conclusions, our investigations have been directed to the following subjects:

1. The characters and habits of all our native vines, and the soils on which they succeed best, have been carefully noted.

2. Five persons* have been appointed to make meteorological observations. One at Springfield in the south-west, one at Cape Girardeau in the south-east, one at Palmyra in the north-east, one at St. Joseph in the north-west, and one at Columbia in the center, in the valley of the Missouri river. These observers have been supplied with the very best instruments, and they have made and recorded their observations according to the plan adopted by the Smithsonian Institution.

3. The experience of our most successful vine-growers has been collected, and the results carefully compared with the conclusions derived from our examinations of the climate, soils, and wild vines of the State.

4. The soils of the State have been carefully observed, and the varieties collected and submitted to a most skillful chemist for full and accurate analyses.

NATIVE GRAPES.—The growth and fruit of our native vines give us most important indications of the adaptation of our soil and climate to the cultivation of the grape. The following species have been observed; the growth, habits and fruit of each variety have been carefully examined.

1. *Vitis Labrusca*, Linn.—**Fox Grape** of the Northern States. This vine is abundant in all parts of the state. It attains to a very large size† in our rich alluvial bottoms and on our best upland soils; but the vines of a smaller size, which are found on the poorest soils in the State, produce much the best grapes. Those which grow upon the dry ridges, on the declivities of the bluffs—especially those of the Magnesian Limestone—and on the talus of debris

at their bases, exhibit a healthy, firm growth, and produce an abundance of fine fruit. The grapes found in these localities are larger, and the pulp is more juicy and palatable. Many well-known and excellent varieties of grapes now in cultivation, were derived from this species. The *Isabella*, *Catawba*, *Schuykill* and *Blands* are the most esteemed.

2. *Vitis aestivalis*, Michx.—**Summer Grape**. This, like the preceding, is found in all parts of the State, and is doubtless the largest of all our vines. It is one of the most striking objects in our magnificent forests; while the stem, like a huge cable, hangs suspended from the limbs of the largest trees, the branches clothed in rich foliage, and often loaded with fruit, hang in graceful festoons over the highest boughs. But the vines growing on the thin soils of our limestone ridges and bluffs, and on the loose debris at their bases, where they are more exposed to the air and sun, produce a greater abundance of the best fruit.

3. *Vitis cordifolia*, Michx.—**Winter or Frost Grape**. This vine is widely diffused through the State; but it is not so large as the Fox or the Summer Grape. Its fruit is small and acerb.

4. Variety of the former, *Gray*—*Vitis riparia* Michx.—**River Grape**. This grape is partial to the alluvial soil along the margins of our streams. It grows to a large size.

5. *Vitis vulpina*, Linn.—**Muscadine** of the West, and **Fox Grape**—according to Elliott, in the South-eastern States. It is most abundant in the southern part of the State. It grows very large and produces abundantly. Its fruit is very much esteemed. The cultivated *Scuppernon* Grape is a variety from this species.

6. *Vitis bippinata*, Michx. This plant was observed in Cape Girardeau and Pemiscot counties.

7. *Vitis indivisa*, Willd. This vine abounds in the central and western counties.

From this list it will be seen that Missouri possesses all the native grapes of our country, save one—*Vitis caribaea*? D. C.—of California. The vines are so abundant and so large as to form an important and conspicuous part of every copse and thicket throughout the entire State. They are every where present, lending grace and beauty to every landscape, and indicating with prophetic certainty that the day is not far distant when the purple vineyards will cover our hills, the song of the vine-dresser fill the land with joy, and the generous juice of the grape will improve our moral, intellectual and physical powers.

EXPERIENCE OF OUR VINE-DRESSERS.*—Several vine-dressers in our State, have been engaged in the cultivation of the grape during the last twelve or fourteen years. Their success has been fully equal to their expectations; and they are full of high hopes of the most useful and profitable results, even of entire and per-

* It gives me great pleasure to bear testimony to the disinterested labors of those who have so faithfully observed and recorded the meteorological phenomena at the stations above named. Our state will be under many obligations to the Rev. G. P. Comings, of St. Paul's College, Palmyra; Rev. James Knoud, of St. Vincent's College, Cape Girardeau; J. A. Stephens, Esq., Springfield; E. B. Neely, A. M., of the St. Joseph High School, and Miss M. B. Hill, at Columbia, who have made the observations at their several localities.

† This vine often attains a diameter of ten inches, ascends the loftiest trees, and spreads its branches over their highest boughs.

* I am indebted to Mr. Wm. Haas, of Boonville, Mr. George Humann, of Hermann, Mr. Frederick Much, of Marthasville, and Mr. Joseph Stuby of Hamburg, for valuable information respecting the cultivation of grapes in our State.

manent success. Their experience in cultivating the vine has led them to the same conclusions that we have deduced from our scientific examinations of the soil, climate, and native vines, viz: *that the vine can be cultivated with entire success, in favorable localities, in all parts of the State.*

It should be borne in mind that these results have been derived mostly from vineyards in the valley of the Missouri and Mississippi rivers, which are not, by far, the most favorable localities in the State; for the "mildew" and the "rot," the most formidable obstacles they have had to contend with, may be partially or entirely obviated in localities where the atmosphere and soil are not so densely charged with moisture. The "rot," says one of our most successful vine-dressers, Mr. Hass, "attacks the berries when the soil is in a wet condition, in July and August. It is most severe on the low and wet parts of the vineyard." Mr. Hasmann says, "the principle cause, all are agreed, is an excess of moisture about the roots, and damp, moist weather." Now the larger part of our vineyards are located upon a *stiff, cold, clayey subsoil*, which, of necessity, retains the excess of moisture and produces the injurious results. This evil may be obviated by thorough draining and preparation of the soil; or, what is better, by selecting some of the millions of acres in the southern part of the state, where the soil is *warmer and lighter*, and richer in ingredients most favorable to the vine, and where the subsoil is so porous as to permit a free passage to the excess of moisture. The *mildew* appears in June; and all agree that it is caused by "*foggy, damp and hot weather*, accompanied by *mists*," more prevalent in the valleys of our large rivers than on the table-lands of the south.

The characters of the two regions under comparison show most conclusively that the excess of moisture in the valleys must be considerable and permanent. These valleys are covered with numerous and extensive lakes and sloughs, and forests of rank growth and vast extent, besides the broad rivers which flow through them; while the table-lands are almost destitute of lakes and ponds, and but partially covered by very sparse and much less vigorous growth of timber; besides occupying an elevation of several hundred feet above the valleys.

No fears, therefore, need be entertained that these obstacles will prevent the entire success of vine-culture in Missouri, should our atmosphere even continue as moist as at present. But we may expect much improvement in this respect, as it is fully established by past experience that the settlement of a country and the opening of a soil to cultivation lessen the amount of rain and moisture in the atmosphere. Notwithstanding the many difficulties our vine-dressers have had to contend with, and notwithstanding some of their vineyards are not, to say the least, in the most favorable localities in the State, their success has been very flattering.

[To be Continued.]

Receipts for Housewives.

INDIAN BREAD WITHOUT YEAST.—Three teacupful of Indian meal, two of rye or wheat flour, one-fourth of a teacupful of molasses, one teaspoonful of salt, and one and a half teaspoonsful of saleratus. Mix in one quart of sour milk. Bake two hours. This is excellent, especially when first made.

SOFT WATER.—A gallon of strong lye put in a barrel of soft water will make it as soft as rain water.

Ribbons of any kind should be washed in cold soap-suds, and not rinsed.

PRESERVING BUTTER.—A patent has been secured by W. Clark, of London, for the following method of preserving butter: The butter is first well beaten in the usual manner after churning, then placed between linen cloths and submitted to severe pressure for removing whey and water. It is now completely enveloped or covered with clean white paper, which is coated on both sides with a preparation of the white of eggs, in which fifteen grains of salt is used for each egg. This prepared paper is first dried, then heated before a fire, or with a hot iron, just prior to wrapping it round the butter. It is stated that the butter may be kept perfectly sweet without any salt for two months, when thus treated, if placed in a cool, dry cellar. The submitting of butter to pressure, as described, is a good plan, and farmers can easily practice it with a small cheese-press. [—*Scientific American*.]

INDIAN MEAL PUFFS.—Into one quart of boiling milk stir eight table-spoonful of meal, and four spoonful of sugar. Boil five minutes stirring constantly. When cool, add six well beaten eggs. Bake in buttered cups half an hour. Try them with a little butter and maple molasses, and see if they are not good.

PLUM PUDDING WITHOUT EGGS.—Half pound grated bread, quarter pound chopped suet, one tablespoonful flour, half pound dried currants, more than two ounces sugar, milk enough to make a stiff batter. Boil in cloth four hours, or bake it, adding a quarter pound of raisins.

DROP BISCUIT.—One quart of sifted flour, one teaspoonful of salt, one beaten egg, one small teaspoonful of soda, dissolved in a little hot water, one cupful of cream, two cupful of sour milk, or butter milk, and a spoonful or two of white sugar. Stir thoroughly to a thick batter. Drop with a spoon on buttered tins. Bake in a quick oven.

BRINE FOR BUTTER.—A good brine is made for butter by dissolving a quart of fine salt, a pound of loaf sugar, and a teaspoonful of saltpetre in two quarts of water, and then strain it on the butter. Packed butter is most perfectly preserved sweet by setting the firkins into a larger firkin, and filling it with good brine, and covering it. Butter will keep sweet a year thus.

The Home Circle.

THE FAMILY.

The following beautiful statement of the family relation, is from the pen of Rev. Mr. Crozier, of Huntington, R. I. We all have need to feel that the family is sacred, its rights inviolable, its relations divinely ordained. We ought to live in this relation according to our highest ideas of true life. Make the family right, and all that goes out from it will be right:

The family is the first school where dependence is felt, and associated life is lived. We have only to take this institution up into our mount of spiritual vision, to see its sanctity and significance. It is as primeval as man and woman. Marriage is God's appointed means of perpetuating the race. It is not simply a personal contract of two individuals, as claimed by our modern re-organizers and pseudo-reformers, on the one hand; nor is it simply a social and legal contract, as claimed by our political economists, on the other hand. It is a divine institution, the repository of man's and woman's most intimate and holy affections, the base of all social order, of all moral and religious institutions, which in turn are both the framework and cement of all civil order. It is the very foundation and corner-stone of purity and social virtue; and every type of civilization in all ages and all countries takes its germ within and its coloring and shape without, from the sanctity of marriage or the disregard of that sanctity. When we consider this, and then look at the family as the school for eternity, as well as time; as the place where childhood first draws its unconscious breath, and takes its first conscious impressions of the world within and the universe without; when we consider the power and permanence of these impressions, we cannot surrender the family for a moment to the caprice or whim of two persons to be dissolved at convenience; neither can we allow that it is simply a social and civil contract to be interpreted by the State. It is the Divine gateway, through the arch of which the long procession of our humanity is forever to pass, in its continuous and upward march; and men have just as much right to prate about abolishing death as the gateway to a higher and freer life, as to talk about abolishing the sacredness of marriage as the gateway of our mortal life. We must lift this institution above all personal ends, above social and civil limitations to the Divine idea of its uses, and insist that these are the exposition of a true liberty. The repression and guidance of passion, not its unregulated indulgence, is the law of a true liberty here; and how severe are the penalties of disobedience at this vital and sacred altar, you can see by uncovering the dens of infamy, where on one offering, beauty, health and virtue are sacrificed to brutal lust, that from its own excesses turns in slumbering disgust. Man and woman are

supplemental, and he who made them at the beginning male and female, has impressed the law of this sacred union upon the soul and the body, with such precision and fidelity, that no sophistries of logic, no pandering to new affinities, no practice of polygamy, can conduct around or away from the sanctity of marriage, without conducting through the fiery deeps of retribution that open at the feet of all who walk in the pathway of a false liberty. Freedom has her laws, more imperative than "the laws of disorder." "Their seat is the bosom of God, their voice the harmony of the world."

THE TOMATO AS FOOD.

Dr Bennet, a professor of some celebrity, considers the tomato an invaluable article of diet, and ascribes to it very important medical properties:

1st. That the tomato is one of the most powerful aperients of the liver and other organs; where calomel is indicated, it is probably one of the most effective and the least harmful remedial agents known to the profession.

2d. That a chemical extract will be obtained from it that will supercede the use of calomel in the cure of disease.

3d. That he has successfully treated diarrhoea with this article alone.

4th. That when used as an article of diet, it is almost sovereign for dyspepsia and indigestion.

5th. That it should be constantly used for daily food; either cooked, raw, or in the form of catsup, it is the most healthy article now in use.

The above statement of Dr. Bennet, no doubt contains much truth. That the tomato is a very valuable article of diet, and especially of summer diet, there can be no longer a doubt. But that which renders it particularly valuable, is not its nutritious quality, which is very small, but the vegetable acid it contains, which is a corrective in the system against the evils of our climate. We all have more or less tendency to bilious diseases. Vegetable acids tend to correct or counteract this evil. Hence the great value of fruits, berries, pie-plant, &c. It is a wise provision of the Creator, in preparing in such abundance, at our hand, the very articles we need to keep our systems free from disease. In the summer, when we are most disposed to disease, we are provided with a great variety of plants and fruits that exactly serve our purpose. If we use them properly, we may ward off the approach of disease. We must always remember that nutriment is but one quality of desirable food. It must be adapted to the season, the climate, and the peculiar wants of the system. In other words, it ought to be medicinal as well as nutritious. We must take our medicines in our food, when we are well, to prevent disease, rather than wait till we are sick. Prevention is better than cure. Hence we urge so frequently the production and use of fruits. We regard these as the natural regulators of the system; as having many qualities exactly adapted to our physical wants. We

hold them both profitable and useful. Every farm and garden should produce fruit.

In the August number of the *Farmer*, we gave an extract from Hall's *Journal of Health*, on summer sores. In the present number we give the above from Dr. Bennet. We are glad to bring high medical authority to support the views we have long been urging upon our readers.

THE INDEPENDENT FARMER.

BY W. W. FOSDICK.

Let sailors sing the windy deep,
Let soldiers praise their armor,
But in my heart this toast I'll keep
The Independent Farmer.
When first the rose, in robe of green,
Unfolds its crimson lining,
And 'round his cottage porch is seen
The honeysuckle twining;
When banks of bloom their sweetness yield,
To bees that gather honey;
He drives his team across the field,
Where skies are soft and sunny.

The blackbird clucks behind the plow,
The quail pipes loud and clearly;
Yon orchard hides behind its boughs
The home he loves so dearly;
The gay old barn, whose doors unfold
His ample store in measure,
More rich than heaps of hoarded gold,
A precious, blessed treasure:
But yonder in the porch there stands
His wife, the lovely charmer,
The sweetest rose on all his lands,
The Independent Farmer.

To him the spring comes dancing gay,
To him the summer blazes,
The autumn smiles with mellow ray,
His sleep old winter hushes;
He cares not how the world may move,
No doubts or fears confound him:
His little flock are linked in love
And household angels 'round him;
He trusts in God, and loves his wife,
Nor grief nor ill may harm her,
He's nature's nobleman in life—
The Independent Farmer.

WOMAN'S WORK.

There are two classes of women in the world about whose work much is said. One is the wealthy, aristocratic class, who consider themselves above labor, care, business; the other is the poor, who from hard necessity, are compelled to work for a living.

The rich have need to work more for health, usefulness and happiness; the poor have need of more remunerative toil for rest and comfort. And yet they both have need of similar labor, that one shall not get proud, nor the other envious. It would be better if the world could come more upon a common platform of industry; if we could all agree about some general employments that should be both pleasant and profitable, useful and honorable.

We would propose one common employment for women in rural districts which ought

to secure the hearty and practical approval of every good minded woman. It is the cultivation of the small fruits, such as strawberries, currants, gooseberries. The labor is easy, healthful and delightful. It may be made scientific, intellectual, genteel, and at the same time profitable. It is so light that any woman can easily do it; the whole theory and practice can readily be learned. A number of intellectual women are already employed in this beautiful and useful field of labor. May the number increase. Widows with families, women of small income, ladies of taste and culture, could find in such employments health, happiness and profit. Books and nurseries afford ample facilities. Shall not woman's sphere of work enlarge?

CHASTE LANGUAGE.

Our good old English tongue is susceptible of great variations. It will utter in sweet sentences, smooth and soft as flowing honey, the holiest feelings of tenderness and affection, or it will grate harsh discord or thunder maledictions. It will do whatever it is asked to do. It is a pliable instrument ready to serve many purposes. From some lips it is beautiful and musical, charming the ear and delighting the soul. From others it is rough, coarse, discordant.—It expresses what is in the speaker or writer.

Good language is ever a beautiful thing. Who does not love to hear it? It indicates a gentleman, a lady, a scholar, a friend. It is an evidence of refinement, taste, good manners, culture, judgment, good breeding.—It has a happy influence, is ever the proper vehicle of good thoughts and proper feelings.

It is said that at one period of Athenian history the ear and taste of the people of Athens were so cultivated that a public speaker would be hissed by the common people for a coarse expression or an ungrammatical sentence. This perhaps is a fastidious refinement; but pure and proper language is ever delightful and ought always to be used. For home use, for friendship, for business, for social life—how admirable is chaste language. A grammar, a dictionary, a proper attention to the cultivation of one's everyday speech, will soon give one correct and agreeable habits of conversation. Try it all bad talkers.

Let your conversation be without malice or envy, for it is the sign of a tractable and commendable spirit; and in cases of passion permit reason to govern.

The Young Folks' Page.

ASTRONOMY.---No. 6.

In our last article on astronomy we spoke of the moon. We will now conclude the subject so far as it relates to that interesting member of the solar system.

Notwithstanding the almost universal reliance placed upon the moon as foretelling the changes of the weather, and as a guide for many of the ordinary, everyday operations of life, yet from careful and long continued observations upon the phenomena of its motions, by the most profound astronomers, it is found that it exerts no sensible influence upon the atmospheric changes of the earth. But upon the waters of the ocean its influence is powerfully displayed.

Those who dwell in the vicinity of the sea observe a rising and falling of the waters at regular intervals (twice in about twenty-four hours), which is found to be a mighty wave, following in steady progression the apparent diurnal revolution of the moon. This wave is caused by the attraction, or gravitating power of the moon, which exerts a force upon the earth; and the ocean, from its fluid nature, obeys the attraction, and is raised in those parts which have the moon near their zenith. Though the moon has direct influence upon the same portion of the earth but once in a day, yet these tides are twice repeated in that space of time. The secondary tide is caused partly by the diminished attraction upon the opposite or farther side of the earth, and partly by the increased centrifugal action or force occasioned by that rise, but mainly by the vibratory impulse caused by the falling of the preceding tide, as the water in a vessel continues to vibrate from side to side after a sudden movement of the containing vessel.

As the moon has no light in itself, but shines by the light reflected from the sun alone, it is evident that there must be periodical changes in the figure, and amount of light that it presents to the earth. When seen in the East at sunset it is called *full moon*, because when in that position, in its monthly revolution around the earth, the whole of the enlightened side is presented toward the earth, and it appears round and full. But when we see it in the West at sunset, a narrow rim of light only is visible, because it is between us and the sun, and consequently the enlightened side is turned from us. At this period it is called the *new moon* and is said to have changed. After its change we perceive that it recedes each day

farther and farther from the sun, and that the enlightened part widens in proportion to its distance. At the end of about seven days the crescent shape is changed and it becomes a half enlightened disc, and is said to be at its *first quarter*. At this time it is nearly on the meridian at sunset, and as it progresses toward the East its form becomes gibbous, and widens from day to day until full, and after this its order is reversed and it goes on diminishing until at the end of 29 1-2 days we see it again in the West at sunset, a new moon as before.

It occasionally happens, at the full of the moon, that its disc is wholly or partially darkened, and so continues for a length of time according to the proportion obscured. This is called an eclipse of the moon, and occurs whenever the earth and moon are in a direct line with the sun, the earth being between them, and casts its shadow upon the moon, or in other words prevents the light of the sun from falling upon the moon. This fact alone furnishes sufficient evidence that the moon shines only by borrowed light.

It also occurs that the moon sometimes passes between the earth and the sun, and in a like manner obscures that luminary. This is an eclipse of the sun. This does not happen every revolution of the moon, because the moon's orbit is not in the same plane with that of the earth.

NAMES OF WOMEN AND THEIR MEANING.—

"Mary, the commonest of all female names, is also one of the sweetest given to woman. It is not strange that it prevails so universally. It signifies exalted; Maria and Marie—the latter French, are only other forms of Mary, and of course have the same meaning. Martha signifies bitterness; Anne, Anna, Hannah, and probably Nancy, are from the same source, and signify kind or gracious; Ellen was originally Helen—Helena Latin, and Helene in French; according to some etymologists it has the meaning of alluring, but others define it as one who pities; Jane, now generally familiarized into Jenny, signifies, like Anna, kind or gracious. For Sarah, or Sally, there are two definitions—a princess and the morning star. Susan signifies a lily, and is a fitting name for a tall, slender, flower-like girl, of delicate complexion and native grace. Rebecca, plump. Lucy signifies like light, and was anciently given to girls born at daybreak. It may also be considered as meaning brightness of aspect and applied accordingly. Bertha bright, and Alberte all bright. Louisa—in French Louise—is the feminine of Louis, and signifies one who protects. Fanny, or Frances, means frank or free. Catherine, or Katharine, pure or chaste, is one of the best of our female names. Sophia, from the Greek, means wisdom. Caroline and Charlotte, queens. Emma, tender, affectionate, motherly. Margaret, a pearl or a dalay; Julia, soft haired; Juliet and Julietta, are the same as Julia; Agnes means chaste; Amelia, and Amy and Amis, beloved; Clara, clear or bright; Eleanor, all fruitful; Gertrude, all truth; Grace, favor; Laura, a laurel; Matilda, a noble or brave maid; Phebe, light of life."

Editor's Table.

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 Persons residing in Missouri and contiguous States
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 St. Louis, Mo.
 Persons residing in Kentucky and contiguous States,
 will address VALLEY FARMER OFFICE,
 Louisville, Kentucky.

Our Office on the Fair Grounds.

We desire to inform our readers that during the St. Louis Fair, our office will be in "Pomological Hall," the new oval building, nearly South of Mechanics Hall and a little West of Floral Hall. We shall be very happy to see our subscribers, and shall be prepared to attend to any business connected with our paper. To such as are not personally acquainted with us, we will say, that we shall be glad to make your personal acquaintance, and we hope you will have no hesitation in introducing yourselves.

Farmer's Names Wanted.

Our subscribers would confer a favor, when writing to us, if they would send us the names of the best farmers of the county, in which they reside, who are not taking an agricultural paper. We will send them specimen copies of the VALLEY FARMER and we have no doubt it will be the means of making them permanent subscribers to our journal. Be sure to give the P. O. address of each. We hope our subscribers will not forget to give their own P. O. address.

Great Fair at St. Louis.

LAST CALL!!

This grand exhibition will commence Sept. 26th, and continue six days. Over \$20,000 are offered in premiums. Among others are the following:

- No. 1.—For the best thorough bred Bull, \$1000.
- No. 2.—For best roadster Stallion, 1000.
- No. 3.—For best thorough bred Stallion, 1000.

The grounds embrace 50 acres of land, covered with blue grass, ornamented with forest trees and evergreens, winding avenues, and nine beautiful fountains.

The Amphitheatre, much the largest in the United States, will seat 12,000 persons, and shelter as many as 30,000. There are also Floral, Fine Art and Mechanics' halls, and a spacious building with steam power attached, a Gallinarius with 90 compartments, for the exhibition of Poultry, and a beautiful cottage for the accommodation of ladies.

A Horse Railroad will convey persons to and from the fair for 20 cents each.

Competition invited from the whole Union, and no fee charged.

This splendid exhibition will be creditable to the great West. Nothing in the East—nothing of the kind in the world can compare with it. The exhibition in every department will far surpass that of preceding years. The stalls for stock are already all engaged and two hundred new stalls are now being erected.

DEVON HERD BOOK.—The third volume of the Devon Herd Book has been issued by Mr. Sanford Howard, the editor, by Brown, Taggart & Chase, publishers, of Boston. The book contains the pedigrees of famous Devon Cattle, and is also illustrated with several engravings. It must be of great value to the owners of this stock. Copies sent by mail, postage paid, on receipt of one dollar.

Exhibition of Fruit at the St. Louis Fair.

We wish to urge our readers to send a large collection of fruit to the fair to be held at St. Louis, commencing Sept. 26th. We know that the season has been unfavorable in most parts of the West for fruit. And it is for this very reason that we wish to impress upon our readers who have fruit, the necessity of having it on exhibition. It is true that most of the fruit is inferior this year, but send such as you have, a few of each of the varieties you cultivate. Have you any choice seedling? By all means send it, that our best Pomologists may test the quality and recommend it, if found worthy. Have you any varieties, the names of which you do not know, that succeed well, and of good quality which you have obtained from friends or Nurserymen? Send them, that their names may be ascertained, that cultivators may know from your experience what varieties to plant.

The Missouri Fruit Grower's Association will be in session in "Pomological Hall," built expressly to advance the cause of Western pomology by free discussions on the subject of fruit culture. All interested in fruit culture are cordially invited to meet at 8 o'clock each morning with the members of the Association. We want practical fruit growers there—men who will give us the results of their experience, and we hope there may be a large attendance of such.

Those who cannot attend the Fair but are willing to exhibit specimens may send them to the St. Louis Editor of this journal, and he will see that they are properly put on exhibition.

Meramec Horticultural Exhibition.

This exhibition held on the 9th day of Sep. at Alton, Mo. was one of much interest. The most thorough and complete arrangements had been made by the Society, and everything passed off in the most pleasant and profitable manner. The society has done itself much credit by holding so successful an exhibition, and we wish every farmer and horticulturist in the State could have witnessed it. The show of vegetables was exceedingly fine. The season in this section has not been favorable for fruit, yet we were pleased to see such fine specimens. We were promised by the Secretary a list of the exhibitors, but as we have not received it we can only state from memory the names of a few who had articles on exhibition.

The Vine Grower's Association, through Mr. C. H. Haven, agent, exhibited some fine specimens of apples and grapes. The Cloth of Gold and the Mammoth Cloth of Gold were very showy and attractive. Dr. McPherson, the President of the Society, made a fine display of peaches, apples, &c. F. W. Bachas, of Franklin county, exhibited 12 varieties of apples, seven of peaches, and Catawba and Isabella grapes in great perfection. Wm. Harris had some fine specimens of fruit, &c. on exhibition. J. C. Blakey exhibited a fine collection of

Dahlias, the Peabody corn, &c. Mr. P. M. Brown favored us with a seedling peach over eleven inches in circumference, obtained from J. C. North, of Franklin county. The peach was well flavored and appears to us to be a valuable addition to our list.

Carew Sanders & Co. of the St. Louis Nurseries, exhibited five varieties of everbearing raspberry, ripe; also Dahlias, Roses, &c. There are many exhibitors whose articles we would like to notice but we cannot remember their names.

An able and interesting address prepared for the occasion was delivered by Mr. F. R. Elliot, after which Hon. J. R. Barret and Norman J. Colman were called upon and addressed the meeting.

St. Clair Co. Ill. Fair.

We spent two or three hours at this Fair at Belleville on the last day of the exhibition. We were pleased to see so large an attendance of the farmers, and so fine a display of the products of the farm, orchard and garden. The fruit, grain and vegetables were particularly fine, and we are happy to announce that we made arrangements to have some of the finest specimens at the St. Louis Fair. The splendid exhibition of fruit speaks favorably of St. Clair county as being well adapted to profitable fruit culture. There were mammoth apples, peaches and pears on exhibition and we doubt if they will be surpassed even at St. Louis. The exhibition in the ladies' department did great credit to the fair sex of that county. We did not have time to note down the names of the exhibitors of stock, though we saw some very choice horses, short horn cattle, &c. Mr. Conrad Bernman, who is one of the most enterprising stock breeders and farmers of St. Clair county, showed us some of his imported Berkshire hogs, and we certainly have never seen their equal in the West. This is a valuable breed and should be more generally introduced. The exhibition in all respects was a most successful one. It was estimated that over 12,000 persons were on the ground on the second day of the fair.

The Good Templar, Vol. 5.

We have received the prospectus of this well known temperance periodical, which enters on its fifth volume next month. We notice that the magazine form as well as the old name is again to be resumed, and that its pages will in future be devoted exclusively to the diffusion of temperance and the advancement of the interests of the order whose name it bears, and of which it is the accredited organ. Terms, single copy, \$1; four copies, 75 cents each; ten or more 50 cents each. Every family should have the Templar. Address B. H. Mills, St. Louis.

The American Journal of Science and Arts.

The September number of this valuable periodical is on our table. Of its character we have already spoken. It is a sufficient guarantee of its value to refer to the names of the distinguished persons who conduct its publication, viz: Professors B. Silliman, B. Silliman, Jr. and aided by James D. Dana, assisted by a number of the most talented and scientific men in the country. The

table of contents for the present issue embraces a number of extremely interesting subjects, among which we find descriptions of nine new species of Crinoidea, from the sub-carboniferous rocks of Indiana and Kentucky, by our friends Sidney Lyan, Esquire, of the Kentucky Geological Survey, and Dr. L. A. Cassedy of Louisville, Kentucky. This is a work of 150 pages, published six times a year. Terms, \$5.00. By Silliman and Dana, New Haven, Conn.

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